NEW ENGLAND FARMER

DEVOTED TO AGRICULTURE AND ITS KINDRED ARTS AND SCIENCES.

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THOUGHTS SUGGESTED BY FEBRUARY.

"Read nature; nature is a friend of truth;
Nature is Christian, preaches to mankind,
And bids dead matter aid us in our creed."

FEBRUARY, with the farmer, affords a comparative season for rest. Not that he has nothing to do, or only a little to do, for he may always have enough. But, after the proper care of the stock, in this month, he may indulge in visiting, or reading, or some amusement, without that detriment to his interests which would certainly follow, if he were to do so in the midst of his planting, or summer or autumnal harvests. He can, properly, find relaxation and rest from his more severe summer labors, and with a decided profit both to body and soul.

It is probable that man has never lived in so interesting an age of the world as the present. An age of energy, of thought and of effort never before equalled. Never before were the advances of science and literature so great, if we except, perhaps, the time of Elizabeth, in England. Scholars are exploring the immensity of the solar system, and plunging into the very depths of ocean and earth, and in all their efforts are developing some substantial good for the human race. The war, cruel and bloody as it has been, has stimulated the genius of our people to its utmost tension, and has been the cause of unfolding a thousand useful contrivances, indirectly, for the arts of peace, that might have slumbered for ages, but for this moving power. And this progress has not been in the art of war alone. While new death-dealing instruments have been devised and multiplied to an astonishing degree, and war vessels constructed with such a terrible power as to paralyze and upset all previous notions of the maritime world,—new contrivances have been sought out for the workshop and the farm; new books upon astronomy, geography, mechanics, chemistry and the art of agriculture, have been written in the most attractive style, and are crowded with that information which the farmer needs.

Now, then, is his golden moment to read such books and establish a treasury of knowledge in his mind that shall become a perpetual well-spring of gratification and intellectual power. Many of these works have a direct bearing upon his occupation of life, and if these were understood, would become the source of permanent pleasure, as well as increase the profits of his labor. It is not now so essential to study the manipulations of the farm as it might have been fifty years ago. In this respect great progress has been made. Every observing farmer's son has had the means of learning, either in examples at home, or in his vicinity, the best modes of planting, cultivating, and securing harvests,—something of the stock best fitted for his purposes, and of the construction and arrangement of farm buildings, and that light, well-made and efficient implements and machines are cheaper than those that are made, like "Pindar's razors," merely to sell.

What he needs now, is to better understand the principles which govern things; the laws, for instance, by which he can procure the best horses, oxen, sheep, or cows, and something more of animal physiology, so that he may know how to treat them, when obtained, and so to secure the largest possible profit from a given outlay. Everything is governed by fixed laws; all vegetable as well as animal products; all mechanism and art,

and everything that touches the labor of the farmer, either in his flocks or fields. How important, then, that a portion of his time should be devoted to an investigation of these things, which are so intimately connected with his labors, and so vitally affect his interests.

And what else would be so pleasing for the present, as such a study. What amusements of a physical nature would give so much calm enjoyment, so much that will feed the mind in the future, so much that will be profitable to the farmer in his business, and qualify him to take an active part in the public affairs of life, as well as in his more personal employments? The individual who is best informed in the common things of life, who is able to give a reason for what the world is perpetually doing and seeing, is infinitely more useful than he who is learned only on one or two abstruse subjects. Such persons, also, are more agreeable and attractive in conversation, and gain hearers and converts where the other entirely fails.

The farmer, of all men, should be a constant student of *natural philosophy*. He should learn the "why and the wherefore" of the thousand things which are continually rising around him, and especially with regard to the wonders of the animal and vegetable kingdoms. Such study will increase the compass of his mind, greatly aid his conversational powers, and qualify him for such a teacher as every farmer should be in the midst of his family. His children will catch the tone of his mind, and thus unconsciously be led into habits of thought and investigation for themselves, which is the high road to usefuluess and distinction.

Such a farmer will neither forget nor neglect the duties of the present month. He will see that his children avail themselves of the advantages of the common or high school, of the lecture-room, of opportunities for associating with those of their own age, and with those of mature years, in the agreeable and instructive gatherings so common in New England society.

He will also see that the animals which are dependent upon his care shall have that systematic attention which their dependent condition demands; that all winter work, whether of the forest or field, of house or barn, at market or at home, is promptly and judiciously performed; that everything shall be done to make the work of the women light; that dry wood and soft water are abundant and convenient, and that the "men folks" shall always give a "helping hand" in the house when it is called for. Under such circumstances, the wife will be healthy and cheerful, and the one to whom all eyes of the household will constantly be turned. Hers will be the most loving and responsible position of life, the stay and charm of the family circle. The daughters will be gentle, graceful, affectionate and intelligent, and the sons dutiful, manly and patriotic. No one has better opportunity to rear such plants as these, than the farmer. May the month of February be one of great progress with him and his, in all that elevates and ennobles our nature.

SEEDING LAND TO GRASS.

In two former articles we have spoken of the importance of this subject, and considered some of the leading points bearing upon it. We close now with brief reference to two or three additional points, hoping that others will express their views upon it through their columns.

We suppose *action* never ceases in the soil any more than in living plants. That by the dews, rains, and even atmospheric contact with a piece of surface, soil is acted upon by the ammonia and other agencies which they contain, and that this activity is altogether greater where the sun's rays have their full force upon it. A writer, in the Rural Register, (Baltimore) says that the rapid exhaustion of our very best soil is not due so much to constant cropping as to the *hoed crops*. One of the primary reasons why these crops have proved so deleterious to the soil, is the fact that the system of cultivation required to bring them to perfection, keeps the intervals between the growing plants *utterly bare* during the hottest part of the year. The action of the sun upon these exposed surfaces, together with the constant stirring of the soil for the purpose of keeping it loose and light and friable, whilst it promotes the solubility of the plant food, yet at the same time exposes the organic and inorganic substances which constitute in their several proportions the elements of fertility to great loss, both by evaporation and washing rains. A simple exposure of bare soil to the action of the sun and rain in summer time, kept constantly plowed, without any crop whatever being grown upon it, if not suffered to grow up in weeds, will gradually cause it to lapse from a state of fertility into one of comparative barrenness. It will lose year after year, by evaporation and by leaching rains, the greater portion of its plant-food, its vegetable and mineral wealth.

The observing farmer cannot fail to see this, and from it he may draw the following conclusions, for it is susceptible of no other:

First. That the exposure of the soil to the sun, heat and rain of our semi-tropical summers rapidly exhausts its fertilizing elements.

Second. The covering or shading of the soil preserves those elements, and induces the putrefactive process in the surface of the earth itself, in some degree.

Third. That green crops, such as clover, should take the place of hoed crops more frequently in

our husbandry, and that the less frequently the surface of the soil is exposed to the wasting influences of the summer sun, wind and rain, the longer it will retain its original condition of fertility.

Trees exert an influence similar to that which we attribute to the grain among the grass plants, only in a more appreciable degree. The great HUMBOLDT said that, by felling the trees that cover the tops and sides of mountains, men were preparing two calamities for future generations—the want of fuel and a scarcity of water. Trees surround themselves with an atmosphere constantly cold and misty. They affect the copiousness of springs by *sheltering the soil from the direct* action of the sun, and diminishing the evaporation of the water produced by rain. The dreadful droughts which so frequently visit the Cape de Verd Islands are avowedly due to the removal of their forests. In India, a few years ago, a proprietor, in laying down some grounds, well watered by an excellent spring, for a coffee garden at Genmore, contrary to the advice of the natives, *cleared the adjacent ground*, when the supply of water soon vanished. Forests increase rain and moisture, and produce springs and running streams. Tracts destitute of woods become strongly heated, the air above them ascends perpendicularly, and this prevents the clouds from sinking, and the constant winds (trade winds or monsoons) where they can blow uninterruptedly over large surfaces, do not allow the transition of vapors into the form of drops.*

Such is the action, only in a smaller way, as we view it, of the grain crop upon the grass.

From the investigation of this subject which we have been able to make, we have come to the conclusion that, when lands are stocked to grass, the first essential to be secured is to keep the ground moderately moist,—and the second so to shelter the tender plants as to protect them from the rays of the sun and high winds, as that they shall not be withered by one nor lacerated or broken by the other! With a deficiency of water in the ground, sunny and warm days, which under other circumstances would be the most favorable for growth, actually prove the most pernicious, particularly for summer plants, which have not yet had time to push their roots deep into the soil where there still exists a supply of water that might convey food to them.† Or, where exposed to high winds that lash the plants against each other, or constant currents that desiccate both soil and plant, the results are equally ruinous to the crop.

To revert for a moment to the *shade theory*. On visiting some of the largest and most productive gardens in my knowledge, we have often been surprised at the wonderful fertility of the soil, and the perfection of its products, whether of vegetables, fruits, or flowers, where various plants were growing in a condition so crowded as to be touching each other. Indeed, in some instances, not a foot of cultivated soil could be seen, the spaces between the stems of the plants being thoroughly covered with some sort of litter, and the only bare places the paths of the garden!

It is in such places, that we have witnessed the highest results of culture,—the most ample outpouring of the generous soil into the lap of the skilful cultivator. That the soil is rich in such choice spots there can be no doubt,—but would it yield, comparatively, as much, were open spaces of bare surface left throughout the garden, equal to one-fourth of its whole area?

Cannot the common farmer visit such places and learn their history with decided advantage to his general operations on the farm?

*Report of Secretary of Bombay Geographical Society for 1850.

†Liebig, Mod. Ag., page 196.

EXTRACTS AND REPLIES.

STEEPS FOR SEED CORN.

Having addressed an inquiry to the *Scientific American* in regard to whether you still published the *New England Farmer*, and whether they could tell me the amount of copperas required to the bushel (of corn) in applying it before planting, and how long it should soak, as suggested in a very old number of your work, by the suggestion of the *American* I desire you to give me the information. R. C. HARRISON.

Baltimore, Md., Jan. 5, 1864.

REMARKS.—The article to which our correspondent alludes is probably one published about ten years ago—the statement of a Mr. Wetmore. The sum of which is, that at noon of the day before planting, the seed was put to soak in a decoction of about an ounce of copperas in water sufficient to cover a quart of corn. The next morning the corn was taken out, about a pint of soft soap added to a peck, and thoroughly stirred, after which plaster enough to make it convenient for planting, say one quart, was added. The whole field was planted with seed thus prepared, with the exception of four rows, which were planted with seed without preparation. Cultivation, &c., the same. The result as stated by Mr. Wetmore was eleven bushels and a half of ears on the four rows of unprepared seed, and seventeen bushels on four rows of copperas-steeped seed.

THE MASSACHUSETTS HORTICULTURAL SOCIETY.

The first meeting of this society was on the 24th of February, 1829, when *sixteen gentlemen* convened at the insurance office of Zebedee Cook, Jr., 7½ Congress street, Boston, for the purpose of instituting a Horticultural Society, when the Hon. John Lowell, of Roxbury, was chosen Moderator, and Zebedee Cook, Jr., appointed Secretary.

It was then voted—That Messrs. H. A. S. Dearborn, Zebedee Cook, Jr., and Samuel Downer, be a Committee to prepare a Constitution and By-Laws for the government of the Society.

Among the sixteen were two from Salem, Mr. Robert Manning and myself. I am desirous to ascertain how many are now living. Those present at that meeting, as far as I can remember, that are deceased are Messrs. Manning, Dearborn, Cook, Downer, Bartlett, Brewer, French and Phinney. If you can furnish the names of the sixteen for your journal, you will oblige, yours truly, JOHN M. IVES.

CATECHISM
—OF—
AGRICULTURAL CHEMISTRY AND GEOLOGY.

BY JAMES F. W. JOHNSTON, M. A.

[CONTINUED.]

II.---Of the Organic Food of Plants.

Q. *Do plants require food as animals do?*

A. Yes, all plants require constant supplies of food in order that they may live and grow.

Q. *Where do plants obtain their food?*

A. They obtain it partly from the air and partly from the soil.

Q. *Do plants require two distinct kinds of food?*

A. Yes, they require organic food to support their organic part, and inorganic food to support their inorganic part.

Q. *Whence do they obtain organic food?*

A. They obtain their organic food partly from the air and partly from the soil.

Q *Whence do they obtain their inorganic food?*

A. They obtain their inorganic food wholly from the soil in which they grow.

Q. *In what form do plants take in organic food from the air?*

A. In the form chiefly of carbonic acid gas.

Q. *What is carbonic acid gas?*

A. It is a kind of air which has no color, but has a peculiar smell. Burning bodies are extinguished in it, and animals die, and it is heavier than common air. It causes the boiling up of soda water, and the frothing of beer, and forms nearly half the weight of all limestone rocks.

Q. *Does carbonic acid gas form a large part of the atmospheric air?*

A. No, the atmospheric air consists almost entirely of a mixture of oxygen and nitrogen gases. Five gallons of air contain about four of nitrogen and one of oxygen, but in 5000 gallons there are only 2 gallons of carbonic acid gas.

Q. *Do plants drink in much carbonic acid from the air?*

A. Yes, they drink in a very large quantity.

Q. *How can plants drink in so large a quantity of this gas from the air, which contains so little?*

A. They spread out their broad thin leaves in great numbers through the air, and thus are able to suck in the carbonic acid from a large quantity of air at the same time.

Q. *How do they suck it in?*

A. By means of a great number of very small openings or mouths which are spread everywhere, especially over the under surface of the leaf.

Q. *Do the leaves suck in this carbonic acid at all times?*

No, only during the day time. During the night they give off a quantity of carbonic acid.

Q. *What does carbonic acid consist of?*

A. Carbonic acid consists of carbon, or charcoal, and oxygen.

6 lbs. of carbon and 16 lbs. of oxygen form 22 lbs. of carbonic acid.

Q. *How do you prove this?*

A. By burning charcoal in oxygen gas, when carbonic acid gas will be formed.

Q. *Does the plant retain both the carbon and the oxygen contained in the carbonic acid that is absorbed by its leaves?*

A. No, it retains only the carbon, giving off the oxygen again into the air.

Q. *How do you show that the leaves give off this oxygen gas?*

A. By putting a few green leaves under a tumbler or gas-receiver full of water, and setting them out in the sunshine, when small bubbles of oxygen gas will be seen to rise from the leaves, and to collect in the upper part of the tumbler.

Q. *Do the leaves of plants drink in anything else from the atmosphere?*

A. Yes, they drink in watery vapor.

Q. *What purpose does this vapor serve?*

A. It serves in part to moisten the leaves and stems, and partly to form the substance of the plant itself.

Q. *In what form do plants take in carbon from the soil?*

A. In the form of carbonic acid, humic acid, and some other substances which exist in the black vegetable matter of the soil.

Q. *In what forms do plants derive nitrogen from the soil?*

A. In the forms of ammonia and nitric acid.

III.---Of the Substance of Plants.

Q. *What does the substance of plants chiefly consist of?*

A. The substance of plants chiefly consists of woody fibre, starch and gluten.

Q. *What is woody fibre?*

A. Woody fibre is the substance which forms the greater part of all kinds of wood, straw, hay, and chaff, of the shells of nuts, and of cotton, flax, hemp, &c.

Q. *What is starch?*

A. Starch is a white powder, which forms nearly the whole substance of the potato, and about half the weight of oatmeal, wheaten flour, and of the flour of other kinds of grain cultivated for food.

Q. *What is gluten?*

A. Gluten is a substance like bird-lime, which exists, along with starch, in almost all plants. It may be obtained from wheaten flour, by making it into a dough, and washing it with water.

Q. *Which of these three substances is usually most abundant in plants?*

A. The woody fibre is the most abundant in the stems of plants, and the starch in their seeds.

Q. *Is starch found in the roots of plants?*

A. Yes, it exists abundantly in the potato and other similar roots.

Q. *What do woody fibre and starch, and also gum and sugar consist of?*

A. They all consist of carbon and water only.

Q. *May these substances then be formed from the kinds of food which the leaves drink in from the air?*

A. Yes, because the leaves drink in carbonic acid and water.

Q. *Can you tell, then, why the leaves give off the oxygen of the carbonic acid into the air?*

A. Yes, they require only carbon and water to form the woody fibre and starch, of which they consist, and therefore they give off the oxygen of the carbonic acid because they cannot make use of it.

Q. *If plants suck in so much carbonic acid from the air, may they not at length rob the air of the whole of the carbonic acid it contains?*

A. No, because new supplies of this gas are continually returning into the air

Q. *Whence do those supplies come?*

A. They come from three sources; *first*, from the breathing of animals, since all animals throw off a small quantity of carbonic acid from their lungs every time they breathe.

Second, from the burning of wood, coal, candles, &c., since the carbon which wood contains, when it burns in the air, forms carbonic acid gas just as carbon when burned in oxygen does.

Third, from the decay of vegetables and roots in the soil, since this decay is only a slow kind of burning, by which the carbon of plants becomes converted into carbonic acid.

Q. *Do animals and plants thus appear to live for each other's support?*

A. Yes, the animal produces carbonic acid upon which plants live, and from this carboni acid and water together, plants produce starch, &c., upon which animals live.

ATMOSPHERIC INFLUENCES UPON SOILS AND PLANTS.

The essential elements of vegetable productiveness are *Earth*, *Air* and *Water*. If we can place the first of these, the Earth, in proper condition, the other two will follow as a natural sequence. That is, when the soil itself is in a favorable condition to receive *atmospheric influences*, it will require, and be greatly benefited by them, without further agency on our part. For instance: If a field is thoroughly *drained*, and then plowed and pulverized as is usually done where a good crop of grain is obtained, that field *will constantly receive fertilizing influences* that a field undrained *will not* receive, although just as well plowed and pulverized.

When a shower falls upon the drained field, the water percolates slowly, but constantly, through the whole earth to the bottom of the ditches. It does not rest upon the surface, nor meet with considerable obstruction on its way to the lowest point of drainage. The withdrawal of cold, stagnant water has permitted the air to enter the soil, taking *heat* along with it, so that it has actually become *warmed* and *dried* to a certain extent, and has caused it to occupy less space than it did before it was drained. The evidence of this may be seen in innumerable cracks, or crevices, which may be found on examination to exist through the whole mass of earth, from the surface to the bottom of the drains, even though they go down four or five feet. This is the *first* effect of drainage, and is the prime operation, *on our part*, to make the land ready for the reception of *atmospheric influences!*

Now the field is ready for the shower, or the dews that are distilled upon its surface, or upon the herbage that covers it. Rain water is charged —in greater or less degree—with salts as well as moisture, that act an important part in the growth of plants. These, finding little obstruction, descend freely among the particles of soil, heating or oxygenizing a little humus here, starting it into the fermentative process so that it shall be easily soluble—for the young rootlets to take up—or touching a grain of sand there, and fitting it to strengthen the tender plant, by covering its outer surface with a coat of mail as brittle as glass itself, such as we find on the straw of wheat and other plants.

But this is not all,—moisture descends in company with these salts, and carries *heat* along with it. It descends freely through the cracks or fissures, already mentioned, imparting its warmth as it goes, so that after passing through the soil and reaching the outlet of the drain, it will often be found *ten degrees colder* than when it first entered the surface!

This moisture is contained in the *air*, held there in solution, too thin and unsubstantial for mortal eye to see, and is continually passing into the soil and ranging freely through it,—as no cold and stagnant water is present to prevent its passage. Here, then, are two most important *atmospherical* operations upon soil that is fitted to receive them; one actually imparting elements of fertility, and the other supplying a generous warmth through its recesses, with all the kindly influences that are gained from a well-constructed border, or the genial bottom heat of the hot-bed! But there is another agent at work no less important than these.

Suppose the season to be a dry one; the earth languishes for the summer rain; the grass withers, the corn-leaves roll and the surface of our fields becomes like ashes. Can we rely upon any *atmospheric* influence under this condition of things, or has He who created the wonderful phenomena with which we must deal, left us helpless and incapable of securing the accustomed crop upon which our lives may depend? There are no clouds that promise rain, but the sun shines on,

"All in a hot and copper sky,"

as though all vegetation must perish under it. In the midst of such a drought, however, the *atmosphere* is crowded with moisture, containing more than it does when showers are frequent. This atmosphere rests upon the surface with a pressure equal to fifteen pounds to every square inch; and the soil being light and porous, greedily receives it and passes it along from particle to particle, distributes its ammonia and other salts, and its heat, as it goes.

At length it reaches a point where the soil is cooler than itself, and is at once condensed into water, and thus the *atmosphere waters the well-drained soil* through a pinching drought, and brings its plants to perfection. The beneficent operation, which is thus ever going on through the long, hot days of July or August suns, is often

beautifully illustrated on our dinner tables when the pitcher is filled with cold water from the well. For a few moments its outside appears to be quite dry, but is soon covered with large, crystal drops, which are condensed from the vapor held in solution by the *air*. The air comes in contact with the pitcher, by which, being colder than itself, its vapor is rapidly condensed and is seen in accumulated drops. This is precisely the process continually carried on in the soil during a hot day by the *atmosphere*, and this is supposed to be what is meant by the decomposition of the air by the soil.

The final purpose of the shower, then, may be, not merely to afford drink to the living plant, but to displace stagnant water in the soil and renew it by percolation.

TWO FINE COWS.

A writer in the *Valley Farmer* states that his brother, in Danube, N. Y., has two cows, *native* breed, which he kept on a five acre pasture, together with "several calves, a heifer or two, and a horse." The family of the owner of the cows consisted of three persons; he had a common share of company, and yet he sold, for several years in succession, $200 worth of butter a year, at an average of 21 cents a pound. Besides this, all the butter and milk that the family needed was used, and 400 pounds of pork made! He lays this success mainly to the treatment which the cows received. In the winter their stables were kept warm and clean. Running water and salt they could constantly get, but had no grain. Their pasture was rendered sufficiently dry by ditching, and produced abundantly of timothy red top and clover, so that some of each kind seeded. It was lightly top-dressed with plaster and ashes. Did not feed short in the fall.

There is scarcely any product of the farm in which there is such diversity of result as in the product of milch cows. In this case, with only "good cows, not much more," the writer says they produced more than a *hundred dollars* each, while the average, we believe, is but a trifle, if any, beyond *thirty* dollars to a cow! From the tenor of the whole article—which we have read with interest—we have no doubt that this unusual success was secured, mainly, by the treatment which the cows and *the land upon which they were fed* received, and not through any superior excellence of the cows.

Since the introduction of pure blood animals from abroad, what are called native cows have gradually fallen into disrepute, and yet we believe a hundred natives, or grades,—as probably most of them are now,—may be found to-day, that will produce as much as a hundred pure blood cows of any breed.

Since preparing the above, we have found the following in the *Country Gentleman*:

Two Extra Milkers.

MESSRS. EDITORS:—The cows noticed in the *Country Gentleman* of the 26th November, as having produced large quantities of milk, must "clear the track," in order that I may "trot out" two *Dutch heifers* imported and now owned by myself.

These heifers were imported in the autumn of 1861, and were four years old last spring. One of them dropped a heifer calf on the 2d day of last April, that weighed at birth 92 pounds, and during the month of June following, a record of the cow's milk was carefully kept, showing a result of 1704½ pounds for the month, or an average of 56.81 pounds per day. The first six days in June she gave an average of 59.04 pounds per day, and on four respective days during the month she gave 60.50 pounds per day.

The other heifer dropped a bull calf on the 26th day of last August, that weighed at birth 110 pounds, and a record of this cow's milk was kept from the 3d to the 9th day of September inclusive, showing a yield of 338¾ pounds, or an average of 48.39 pounds per day. The calf of this cow was weaned when two days old, and fed upon a portion of the mother's milk until he was eighty days old, when his weight was found to be 350 pounds, a gain of 240 pounds in eighty days, or just three pounds per day. And this without an ounce of grain of any kind. W. W. CHENERY.

Highland Stock Farm, Belmont, Mass.

For the New England Farmer.

FRUITS IN THE NORTHWEST.

Farmer C., a dozen years ago, planted out about one hundred apple trees. He kept the ground cultivated five or six years, then seeded down to grass. Before seeding it had commenced to come into bearing. Soon after seeding down his yield of fruit showed signs of growing less instead of more. Farmer C. could not understand why his orchard refused to yield him fruit. In conversation with a neighbor, he got an inkling of what was the matter. He was told the mischief lay in seeding down his young orchard, If that is the case, I will straightway break it up. He did so. The second year after cultivation he picked a heavy crop for so young an orchard. This year he has raised about three hundred bushels of fruit, the most of which he has sold for one dollar per bushel.

Farmer L., likewise, seeded down his young orchard, but the result was such that he soon plowed again. Now the trees are loaded with good crops yearly. Not fully convinced, he left an isolated patch of trees growing in grass—or trying to grow. They bear no fruit to speak of, and are not half the size of others growing in his garden, located side by side.

Farmer B. has had his young orchard down to grass for the last three or four years. His trees look forsaken and have been dying out the last year, and yield him no fruit of consequence. His garden lays along side of his orchard, and trees in that are growing and yielding finely. Another orchard, not three miles from the above, on a similar soil, yields now five hundred bushels per annum. The trees have been kept cultivated, but bear marks of having been badly used, being bad-

ly scarred and mangled by careless cultivation. I have two orchards in view, located not over eighty rods apart. One is seeded down to grass. The other has its trees all scarred and mangled by careless cultivation. Yet with this drawback the cultivated orchard is a long way ahead.

Go where you will in the Northwest, trees are looking finely as a general thing, in cultivated grounds. But as a general thing they are looking half starved, sickly and more dead than alive, where the grounds are overgrown with grass and weeds.

Experienced cultivators and observing men recommend the following varieties as valuable apples for cultivation in the Northwest, and as being extra hardy. They furnish a supply the year round:

Red Astrachan, Dutchess Oldenburg, Fall Stripe, Ant. Strawberry, Sweet Pear, Fameuse, Fall Wine Sap, Colvert, Cider, Sweet Wine, Tollman Sweet, Pomme Gris, Northern Spy, Winter Wine Sap, Perry Russet, Golden do., Raules Janet, Canada Black, Red Romanite, Dumelows.

There are nearly as many more that promise well, but have not had thorough trial, which will give entire surety in their ability to stand our hard winters.

Eastern varieties that are hardy grow very fair fruit and of good size. Canada and Eastern people are often at loss to recognize well-known varieties. L. L. FAIRCHILD.

Rolling Prairie, Wis., Nov., 1863.

For the New England Farmer.

PRINCETON.

Twelve miles northward from the city of Worcester, there is a beautiful eminence called Wachusett Mountain. It is not a great mountain. It rears its conical head only about two thousand feet above Massachusetts Bay. It is the point of land that the eye of the mariner first rests upon as he nears our coast. The view from the summit is an enchanting one. Wood, lawn, lake and river, all conspire to create a magnificent prospect.

Nestled in the embrace of this mountain lies the quiet town of Princeton. It is noted for its salubrious atmosphere and delightful prospects. The town was named from one of the early pastors of the Old South church in Boston—Rev. Thomas Prince, who was a large stockholder in the landed property of the place. This learned gentleman was something of an historian, having published in 1736 "The Chronological History of New England," which was considered a work of considerable merit in those days. Only as many copies as had been previously subscribed for were permitted to be printed, the subscribers having the satisfaction of seeing their own names printed at the commencement of the volume.

In the summer months many people from the city resort here, seeking health and pleasure. It is situated only fifty miles distant from Boston, and is easy of access by railroad, so that the man of business who can ill afford the loss of time requisite for a trip to Saratoga can easily spend a day at Princeton with his family, and gain real strength and vigor for future labor. A few invalids spend the entire summer here, but the larger class of visitors remain but a few days, or weeks at most, and then give room to others. During the past summer there were about three hundred visitors constantly enjoying the hospitalities of the people. The three hotels being insufficient to accommodate so large a number, many a farm-house opened its doors to receive them.

As an agricultural town, Princeton takes rank with the best towns in the State. No better pasture lands can be found anywhere than those lying adjacent to the road leading from Princeton to Worcester. As a natural consequence, we find superior dairies. The dairy products amount to $75,000 annually. Much of the pasture land being situated at an inconvenient distance from the farm buildings for dairy purposes, is devoted to making beef, some of the farmers turning forty head of beef cattle the present season.

There are some noted farms and farmers in this town. Mr. Boylston occupies a farm which has been counted the model farm of the State in former years. The commodious buildings, majestic shade trees, trim fences, etc., are the theme of admiring remarks from all who visit the premises. In the same locality we find the residence of the late John Brooks, Esq., who was a truly progressive agriculturist. His many experiments in feeding stock, testing the comparative value of different kinds of fodder, as well as his experiments with field crops, which are recorded in "The Agriculture of Massachusetts," give abundant evidence of an investigating mind and persevering industry. Others in this vicinity have given evidence of skill in rural affairs, worthy of mention, if I had space; but rather than incur the risk of being tedious, I forbear to speak of them.

Worcester, Dec., 1863. VIATOR.

REMARKS.—We thank "VIATOR" for this and other favors, and suggest that, as our paper is now enlarged to its former size, room may be found for his interesting articles, even if they are somewhat extended.

For the New England Farmer.

METEOROLOGICAL RECORD FOR NOVEMBER, 1863.

These observations are taken for and under the direction of the Smithsonian Institution.

The average temperature of November was 40°; average midday temperature, 45°. The corresponding figures for November, 1862, were 37° and 42°. Warmest day, the 17th, averaging 57°; coldest day, the 30th, averaging 22°. Highest temperature 59°; lowest do. 18°.

Average height of mercury in the barometer 29.22 inches; do. for November, 1862, 29.25 inches. Highest daily average 29.69 inches; lowest do. 28.83 inches. Range of mercury from 28.79 inches to 29.69 inches.

Rain fell on ten days; amount of rain 3.55 inches,—no snow. Six days rain and snow in November, 1862, with 7 inchee snow and 1.05 inches of rain and melted snow. There were no entirely clear days; on three days the sky was entirely overcast.

It will be noticed that the average temperature of the month was decidedly higher than the same month last year. The barometrical average was lower, with more than three times as much rain. The constant succession of cloudy days and the small proportion of sunshine will be remembered.

Claremont, N. H., Dec., 1863. A. C.

For the New England Farmer.

REMEDY FOR THE BORER.

I derive much information, as well as pleasure, in reading your useful journal. I saw awhile since in the *Farmer*, a communication concerning a remedy for the borer, by F. N. Thayer, Blackstone, Mass. No one can deny the value of such a discovery, if effectual, when we consider the thousands of trees destroyed by this insect, and many others made worthless. If this remedy is good, the public ought to know it. I have tried it—I admit at first with little faith—and found it most satisfactory; easily applied, the trees protected soon revived, and were not troubled with the borer, whilst all others suffered more or less, in spite of all the digging out, till they looked more like a target than a fruit tree. I feel that that the trifle paid for the information was well invested, and feel thankful to the inventor for a remedy that removes the greatest difficulty to fruit-growing. With my present knowledge, I should not think of planting young trees without using this remedy. And then I should see my trees grow with their natural vigor without being marred and bored by this creature. If all who plant trees would use it, I think we should soon hear little of the borer. Its value to the community cannot be overrated; with it we can raise all choice fruits; without it, fruit-growing requires our constant care, and then we often fail.

Such is my experience, Mr. Editor, with this ingenious discovery, that shows a thorough knowledge of the habits of this insect.

Cumberland, R. I., 1863. A. C. FARMER.

For the New England Farmer.

A FEW WORDS ABOUT BEES.

In the *Farmer* for Dec. 5th, I notice a quotation from an article written by Mr. J. Hazen, for the *Country Gentleman*, in regard to overstocking with bees.

No doubt it can be done, but it is not so often as some suppose. Honey does not exist in condition to be gathered by bees at all times and seasons, and must be gathered in its season or not at all; as it vanishes like the manna of the Israelites; but while it lasts millions of bees can fill their sacks as well as thousands. Hence swarms that are not ready to gather in honey harvest have no stores.

I have become satisfied, from thirty years' experience, in bee management, with close observation, opening and examining swarms at all times of the year, that it is from the mismanagement of the beekeeper, or no management at all, that bees do not store more honey, even to fabulous quantities. I have frequently taken one hundred pounds of honey from a single swarm, in one season, and left plenty for winter; have done it this last season, and as the writer says it has been a very poor honey season.

In hives generally used bees have family storeroom for about an average winter, (and frequently are not allowed to fill that,) hence in hard winters for bees, they are short near spring, and frequently starve. Those that survive have not sufficient stores to warrant supplies for breeding, hence breed little till the honey harvest comes; then there is a small stock of bees to do the work of rearing brood, gathering honey, pollen, etc., and keep up the necessary warmth in the hive.

The consequence is, late swarms, honey season far advanced, or nearly over, the honey of the old stock consumed by brood, while some of the young swarms nearly fill their hive with comb and some honey, and later swarms less, or next to none.

Should the fall be favorable for honey, some of the largest swarms will lay in sufficient for winter. Late swarms of few bees can do but little, and should either be doubled, sometimes tripled, or returned to the parent stock.

A small supply of honey and pollen furnished to swarms in early spring will send out early and large swarms, which will store large quantities of honey for man and bees, in proper hives, in average seasons. Bees too often starve through the negligence of their keeper, and they sometimes die leaving plenty of honey; sometimes die of disease. J. CURTIS, *Practical Apiculturist.*

New Britain, Ct., Dec. 8, 1863.

For the New England Farmer.

A QUERY FOR ARBORICULTURISTS.

Does the sap which enters the roots of a tree go into the general circulation? or does each root-branch furnish nutriment to a corresponding portion of the loss—the two mutually acting upon and sympathizing with each other?

In my orchard are three apple trees, standing in wettish ground, rapidly descending on one side to soil so wet as to produce sage grass, on the other gradually rising to dry and warm soils. On the wet side the limbs have been dying until full one-half of the top of each tree has been removed, while the up hill side of each top remains healthy and bore a good crop of fruit this season. Now if the acid is poison, drawn in by the roots dipping into the mud, and has been carried into the general circulation, why not the whole tree die? R. B. H.

SAFE FARMING.

What a farmer wants, is success; and he wants it immediately. If your book or your newspaper tells him what to do, he wants to be certain; he cannot afford to experiment. Well-to-do farmers may do that. But the man who buys a farm, or but a few acres, does it to reap benefit from it. He may have a family dependent upon his first year's success; or he may have debt to pay, which is generally the case. He must have success the first year, and the years immediately after. If not, he may lose his farm. Success in farming, as in life, is what we want.

"Can I depend upon my book? Will my *Valley Farmer* or other agricultural journals not deceive me? I want to know this, if I am to follow their directions. They are published to make money; that is clear. Do they also look to the good of the farmer?"

Yes, if your publisher is honest. Or, if not, it is for the interest of the publisher that he print what is beneficial, for that is what his paper is taken for. It is necessary then to at least appear honest.

The young farmer, beginning life under such delicate circumstances—of debt and dependence—should not fear. If an agricultural book or paper misrepresents, it is only what the world sometimes does; in all its departments (the world's)

defects are found; necessarily found, because human affairs are imperfect.

But our best agricultural books and papers are to be relied on; not of course always, for there must be more or less theory connected with the practical. It is theory that starts the practical—helps it along. The reader must have intelligence enough to discriminate. An ignorant farmer will not do. He will drag along; no more. Our best farmers are our best thinkers; not our richest always, for some people have a great faculty for saving. We know many such, with a good deal of native shrewdness, and more of parsimony—these people know how to hoard, how to strike a good bargain as well.

But good common sense should the farmer bring to his vocation. He will then see what is merely opinion, and what is fact. He will not trust his year's farming upon a vague statement. This he will do: when he sees his neighbor's success, he will inquire into that success. If that neighbor is an honorable man, he will tell him about the *modus operandi* of that success; not the success of one year, but success generally; and relate what he knows about the matter; and that is no more nor less than communicating his success. Now this honorable, successful farmer, not only communicates to his neighbors, but also to agricultural papers. Such men write our successful farming books. You want to know your man then; and you want to know him by his success. As you must have *some* pattern to follow after, take the successful kind of farming, practiced by honorable men. That is the whole nut of the secret. Example is the grand lever in farming.

GREASE, OR SCRATCHES ON HORSES.

Scratches, as this disease is commonly called in New England, is not dangerous, or difficult to cure, unless neglected by the grossest carelessness and abuse. It is occasioned, sometimes, by cutting the hair from, and thereby exposing the hinder heels to the operation of cold and wet. In winter when the legs most require warmth and protection, the heels are deprived of the covering which nature intended should protect them, and parts where the blood flows most tardily are laid bare to the effects of evaporation and frost.

Turning out to grass, especially during the colder months, when the wet is particularly abundant, and the bite short, is another fruitful source of this affection. Allowing the mud to remain on the parts after the horse is returned to the stable, and a general neglect to keep the feet and legs clean, is, perhaps, the chief cause of this painful disease.

The earliest symptom of "grease" is the cracking of the skin of the fetlock, very much as the hands become "chapped" in cold weather. The legs then swell, accompanied by more or less fever. If the hair should be examined, it will be discovered loaded with scurf about the roots, while one foot will be frequently seen employed to scratch the back of the opposite leg. At the same time, the part begins to exude a thick, unctuous moisture, from which the disease derives its name. This hangs upon the hairs of the heel in heavy drops. It is an offensive secretion.

Should no regard be now bestowed upon the sufferer, and the horse worked on despite the lameness, the skin swells, white cracks, deep and wide, appear upon the inflamed integument, the

lines of division ulcerate, sometimes very badly, and a thin, discolored and unhealthy pus mingles with the discharge.

The remedy for this disease is simple enough, but the *preventive*, cleanliness, is still more easy. Wash the parts in warm suds of castile soap, rub them with some soft, fresh oil, with the fingers, and keep the horse warm and quiet.

Mayhew, in his excellent work, "*The Illustrated Horse Doctor*," recommends the following, to be used three times each day, viz.:

Lotion for the Earliest Stages of Grease.

Animal glycerin	half a pint.
Chloride of zinc	half an ounce.
Water	six quarts.

Lotion for the Ulcerative Stage of Grease.

Chloride of zinc	one ounce.
Creasote	four ounces.
Strong solution of white oak bark	one gallon.

But, we urge again, a humane care of the animal—when this is observed, the disease will never appear.

FEEDING CALVES.—A friend of ours who has great success in raising calves on skimmed milk and "corn pudding," adopts the following method: He never lets the calf suck the cow, but teaches it to drink out of a pail. When the calf is three or four days old, he takes about a teacupful of corn meal and pours a pint of hot water over it, stirs it up and lets it scald for a few minutes. He then pours on three or four quarts of skimmed milk, or as much as the calf will drink. In the meantime he has had a piece of iron heating in the stove. When red hot he stirs the milk with it. This "scorching the milk" he considers of the greatest importance when calves are fed on skimmed milk. It prevents it from scouring the calves. As the calf grows older he increases the quantity of corn meal. When three weeks old he gives at least a pint at each meal. The skimmed milk, at first, is only twelve hours from milking, but when the calf is older the milk may be allowed to stand twenty-four or thirty-six hours before it is skimmed.—*Genesee Farmer.*

EXTRACTS AND REPLIES.

ONION PUZZLE.

Your correspondent will find the solution of his thick necked and perfect onions growing side by side in the difference of seed. His seed might have been the product of a scullion (thick necked) and perfect onion respectively. As "like begets like," the seed from perfect onions produces perfect onions, and the seed from scullions produces scullions, other things being equal. Poor soil, deep planting, and seed from immature thick necked onions will produce scullions. If you wish perfect vegetables, be careful what seed you sow. L. L. F.

Rolling Prairie, Wis.

PRODUCT OF 31 SHEEP.

I have sold from thirty-one sheep the past season $281.25 worth of wool, being a trifle over $9 a head. They were neither coarse or fine wool. They raised me forty-six *lambs*, which were sold at the market price. MILO LAWRENCE.

Passumpsic, Vt., 1863.

THREE HINTS FOR THE SEASON.

Be sure and cover the bits of your bridles with leather, to prevent the frost from making the mouths of your horses sore. It is downright cruelty to put an iron bit into a horse's mouth on a cold morning. If you doubt it, bit yourself some day when the mercury stands below zero.

When you cut India rubber, keep the blade of your knife wet, and you can then cut it without difficulty.

We have heard of and tested a great many kinds of waterproof blacking for winter boots. Let us tell you what we have tried for two winters, and found to be the best article we know of. When your boots are stiff and you think need oiling, wash them in castile soap-suds—oil before the leather dries, (you may use blackball or any kind of grease;) have a saturated solution of gum shellac in alcohol—anybody can make it, as all there is to be done is to dissolve in a pint or half-pint of alcohol just as much shellac as the liquid will take up—and apply this solution with a sponge to the oiled boots. In two or three minutes the shellac will dry and harden, and you will have a coating on your boots through which the water cannot by any possibility penetrate. Try it, reader.—*Germantown Telegraph.*

LANGUAGE OF INSECTS.

A most singular discovery, the credit of which appertains, we believe, to Mr. Jesse, is that of the antennal language of insects. Bees and other insects are provided, as everybody knows, with feelers or antennæ. These are, in fact, most delicate organs of touch, warning of dangers, and serving the animals to hold a sort of conversation with each other, and to communicate their desires and wants. A strong hive of bees will contain thirty-six thousand workers. Each of these, in order to be assured of the presence of their queen, touches her every day with its antennæ. Should the queen die, or be removed, the whole colony disperse themselves, and are seen in the hive no more, perishing every one, and quitting all the store of now useless honey which they had labored so industriously to collect for the use of themselves and the larvæ. On the contrary, should the queen be put into a small wire cage placed at the bottom of the hive, so that her subjects can touch and feed her, they are contented, and the business of the hive proceeds as usual. Mr. Jesse has also shown that this antennal power of communication is not confined to bees. Wasps and ants, and probably other insects, exercise it. If a caterpillar is placed near an ant's nest, a curious scene will often arise. A solitary ant will perhaps discover it, and eagerly attempt to draw it away. Not being able to accomplish this, it will go up to another ant, and, by means of the antennal language, bring it to the caterpillar. Still, these two, perhaps, are unable to perform the task of moving it. They will separate and bring up reinforcements of the community by the same means, till a sufficient number are collected to enable them to drag the caterpillar to their nest.—*Once a Week.*

CHURNING IN WINTER.

The frequent inquiries for a sure method of always churning butter as quickly and of producing as good an article in winter as in summer, we cannot well answer, for the substantial reason that we knew of no such method. Good mixed feed for the cows, keeping the milk and cream from freezing, and bringing the cream to a proper temperature before beginning to churn, comprehend about all we can say on the subject.

A subscriber, a lady, at Locust Valley, Queen's Co., N. Y., communicates to the *American Agriculturist* her method of making butter in winter, which she thinks far surpasses any other plan which she is acquainted with. She writes that "by this method the full quantity of butter is obtained, the quality is equal to that of grass butter, the buttermilk is rich and remains sweet for drinking or culinary purposes, such as making rice puddings, and the process is certain and simple, and attended with little trouble. It is as follows: The cream is skimmed each day, and placed at once in a kettle, and the kettle put into hot water (to prevent scorching,) and put over the fire. The cream is allowed to scald, without boiling. It is then put into a vessel and set aside; each day's cream being in like manner scalded, and added to the mass, until enough for a churning is obtained. The churning is commenced immediately after adding the last day's cream, which brings the whole to a proper temperature, without thinning by the addition of hot water."

WINTER THE TIME TO THINK.—Winter is the time for farmers to think—spring, summer, and fall to work; and the three latter seasons' labor will be to little profit, if the time of the first shall have been misspent. All the plans of the next season's operations should be laid and well considered during winter. All improvements, all designs for new operations; all the work to be done, should then be considered and prepared for; so that, when the time for work arrives, he will have nothing to do but to "go ahead." Then he has no time to think; but if he has been wise during winter, he will have no need of it. It is a pitiful sight to look at in the spring, when all nature is in an ecstacy of delight, to see a farmer flying about "like a hen with her head cut off," trying to do a thousand things at once, not knowing which to do first, running here and running there in search of rusty implements, some of which require repairs, some can't be found, the plowing season passing away, the planting season rapidly advancing, and he not prepared for anything. O, it is pitiful!—*Exchange.*

SONG OF THE BLACKSMITH'S WIFE.

My husband's a blacksmith, and where will you find
A man more industrious, faithful and kind?
He's determined to thrive, and in that we agree,
For the ring of his anvil is music to me.

Though dark his complexion and grimy his shirt,
Hard and horny his hand, and disfigured with dirt;
Yet in that rude casket a jewel I see,
And the ring of his anvil is music to me.

Ere Aurora's fair nymphs chase the night from the skies,
Ere the sun pierce the glooming, from bed he does rise,
Ere the lark leaves her nest, at his forge he will be,
And the ring of his anvil is music to me.

Though to labor he owns, we are far from being poor,
Industry has banished gaunt want from our door;
For the blacksmith's a man independent and free,
And the ring of his anvil is music to me.

At a distance from home I have seen with delight,
The red sparks from his chimney illumine the night,
And have heard the fast strokes on the anvil rebound,
And my heart has leaped up at the musical sound.

Those strokes on the anvil, say, what do they prove?
Forethought and affection, industry and love;
A resolve to be honest, respected and free!
That's the tune on the anvil that's music to me.

MAKING PORK AT THE WEST.

While many Western farmers allow their hogs to run at large in the woods, or in short pastures during the summer, and to come up in the fall poor, stunted and hidebound, there is a class who pursue a more economical plan, and aim to keep their hogs in a thriving condition from the time they are weaned till they are sent to market. The course of fattening adopted by many intelligent pork raisers is thus described by a Western farmer in the Albany *Cultivator:*

They arrange their crops so as to have a regular succession, upon which the hogs are turned, something in the following order: First, into clover; after this into a field of rye, as soon as the grain is fully out of the milk. They are next turned upon the wheat stubble, or into the oat field, while the grain is still soft. As soon as the grains of Indian corn are fairly formed, the corn and stalks are cut up at the ground, and this is fed to the swine, stalks and all; or what is also common the hogs are turned into the smaller fields of corn to help themselves, where they take on fat rapidly, while the weather is warm and the corn soft. Corn in this state has all the advantage of that which has hardened and been cooked. Thus the animals are kept constantly thriving, and with good breeds, are ready for the knife at almost any time.

SHEEP SHEDDING WOOL.—Mr. LEWIS CLARK, in the Wisconsin *Farmer*, says the best plan to keep the wool on sheep is to keep them *fat*, and that if sheep "run down" from any cause, and are fed high at once, their wool will start. Even a change of pasturage, from a poor to a timothy and clover pasture, will start the wool from a lean sheep. But the feeding of corn, beans, wheat, rye, barley, oats, vegetables, or anything that sheep will eat that makes *fat*, avoiding sudden changes, will not only cause the wool to stick, but will increase it more than enough to pay the additional cost.

MAINE AGRICULTURAL STATISTICS.

A law was passed by the Legislature in 1862 requiring the municipal authorities of the respective towns and plantations in the State to make return of certain agricultural statistics to the office of the Secretary of State annually. From a communication in the Portland *Courier*, it appears that 237 towns have made these returns.

In the 237 towns making these returns there are 41,778 heifers, 67,008 cows, 39,659 steers, 36,085 oxen, 277,970 sheep, 1,028,102 lbs. wool, 33,054 horses, 618,842 bushels corn, 215,899 bushels wheat, 4,255,473 bushels potatoes, 1,361,387 bushels apples, 4,458,778 lbs. butter, 821,970 lbs. cheese, 124,830 lbs. honey, 74,843 lbs. maple sugar, 19,968 gallons maple molasses; 996 sheep killed by wild animals, 1,371 sheep killed by dogs. Damage to sheep by dogs, $5,905.

Kennebec county has the largest number of cows, 9,557; Oxford the most oxen, 5,487, and steers, 7,089; Somerset the most sheep, 47,745, and the greatest amount of wool, 261,268 lbs, and swine, 8,132; Oxford the largest number of colts, 1,792; Penobscot the largest number of horses 4,657; Oxford raises most corn, 120,659 bushels; Somerset the most wheat, 36,519 bushels; Oxford the most rye, 14,245 bushels; Somerset most barley, 106,903 bushels; Penobscot most oats, 171,061 bushels; Aroostook most buckwheat, 23,679 bushels; Penobscot most potatoes, 929,499 bushels, and turnips, 29,396 bushels; Lincoln most beets, 13,030 bushels; Kennebec most apples, 249,440 bushels; Somerset most upland hay, 59,885 tons; Oxford most intervale hay, 11,882 tons; Kennebec makes most butter, 575,513 pounds; Oxford most cheese, 168,651 pounds; Penobscot produces the most honey, 36,328 pounds; Oxford makes the most maple sugar, 53,560 pounds; Somerset raises the most beans, 15,169 bushels.

For the New England Farmer.

ROGER'S HYBRID GRAPES.

NOTE FROM SAGGAHEW.

MESSRS. EDITORS.—I have just noticed in the monthly *Farmer* for November the inquiry of "Vitis," in regard to Roger's Hybrid grapes. Had I not, most unaccountably, overlooked the weekly number containing it, a reply would have reached him sooner.

He asks if he is right in supposing No. 19. of these new grapes to be "the most promising one for Massachusetts," and "whether No. 5, or any of the other numbers, are proving to be valuable for us here in New England?"

In reply, I will say that No. 19 is proving to be an excellent out-door grape for this latitude, and I am confident that it is one of the very best of the few desirable numbers of Mr. Roger's grapes. It is yet too soon to say which is *the* best, and from experience thus far it seems very probable that no one of them will ever be so considered—from the fact that several of them are so nearly equal in qualities, (though essentially different from each other) that it is difficult to decide which is the better one for general cultivation. Nos. 4 and 15 were the first ones "figured," and have had the start of all the others in getting into the hands of propagators, but it is now well known that several of the others are every way equal to these, if not superior. If I read the reports correctly, No.

19 has literally *forced* its way to recognition as the equal of either of those so early and so extensively heralded. My own selection from these grapes was originally made upon the private judgment of a friend. He was inclined to place No. 19 at the head of the list, though he considered that there was but little choice between several of the other numbers. Persons with whom the Black Hamburg is a favorite will be likely to select No. 19, because it so much resembles the former. Those who prefer the "vinous" to the "sugary" flavor will be more likely to select No. 15. No. 19, within my observation, proves to be as hardy as any of our out-door grapes; is a vigorous grower; bears large crops of large fruit (both bunch and berry being large;) the quality is generally admitted to be superior to the Concord, and it ripens at least one week earlier than the latter. One of its peculiarities is the tenacity with which the berries "hang on." A friend, who kept some until Christmas, found that the berry and stem were even then unwilling to part company. Did time and space allow, I would quote from the reports of others in regard to this and others of these new grapes. I can safely recommend No. 19 as well worth a place in every collection.

Of No. 5 I know but little, and prefer to wait before recommending it. Nos. 1, 3, 4, 9, 15, 33, and others, are each worth a place in larger collections, but more time is wanted before it will do to advise their general cultivation. They each "promise" well, and I have not the least doubt that several of them will become established favorites in time. With my present experience, I should select from these Hybrids something in the following order: No. 19, 15, 14, and then "toss up" for the others. SAGGAHEW.

EGGS IN WINTER.

We have noticed that a mild winter, with little or no snow; i. e., a season in which the ground is much bare and warm; is the season for eggs. Last winter, hens were laying in all directions; merchants were largely stocked with fresh eggs.

Will not our friends take a hint here, and convert all winters into egg-laying winters; that is, by artificial means, make a mild winter for your hens.

Our aunt said, last winter, that she was going to have eggs from her seven hens. We told her she would be very apt to get no eggs. The season advanced. The weather proved mild. One day she announced four eggs, and did it in triumph.

"Yes, but all the neighbors have the same luck; they all get eggs. How is this? It is the summery aspect of the season that does this, and proves what I said, that hens must have a warm place in order to lay."

Will my aunt or anybody else believe, that as soon as cold weather sets in, eggs will continue? Even my aunt will find out she is mistaken. Hens must not suffer from cold, if we wish them to lay; they must not suffer at all. Feed them as much as we may, they must not shiver in the cold, if they are to lay.

They love to see the sun; they must have ground to be on, and to wallow in; fresh water, and a good, quiet place to go to lay. Most of all they must be warm.—*Maine Farmer.*

For the New England Farmer.

TENT CATERPILLARS.

MESSRS. EDITORS:—I have seen a newspaper item recently, stating that the government of Switzerland has paid one million of francs the present year for the destruction of butterflies; and, however odd the idea of such an expenditure may strike many people, undoubtedly the money could not easily have been better spent for the public good. If our own State of Massachusetts would offer a generous bounty for the collection and destruction of the eggs of the common tent caterpillar, that to such a fearful extent ravages our apple trees, much good would result not only to the farmer, but to the general public.

The common tent caterpillar seems to be decidedly on the increase in our orchards. Their numbers the present year in this section have certainly been unparalleled in my recollection, and we have had accounts of their unusually extensive ravages in various parts of the country. Here, scarcely an apple tree was free from them, and even some small trees were burdened with several colonies; and often when one colony would be removed from the fork of a young tree, in a few days another would be found at the same point, which, removed, a third would soon appear tented at the same point as the others—different colonies successively hatching on different parts of the tree, and choosing a common point for their headquarters. At the same time, in the hedges and forests, scarcely a bush or tree of the several species of wild cherry could be found that was not literally stripped of its foliage.

Looking over some young apple trees last October, I was not surprised to find the clusters of eggs adhering to the twigs in unusual abundance. It was not uncommon to find from three to six clusters on trees not yet large enough to come into bearing, and on trees a little larger, from eight to ten, or twelve, or even more, was no unusual number. Hardly a tree was examined that did not have some. The wild cherry trees I find this fall are exceedingly well stocked, bushes not larger than one's wrist having four or five clusters, quite commonly, and many even more.

To gather them in great quantities would be no difficult nor very expensive operation. So long as the caterpillars are permitted to multiply without check on the wild cherry trees, however well the orchards may be watched and the insects there exterminated each year, the evil will not be materially lessened. The amount of forage furnished by the wild cherry trees, their original food, is, and has for a long time been continually decreasing, and hence they resort to the apple trees as furnishing food the next most agreeable to their taste. The moths are furnished with wings, and guided by instinct to select the most favorable places for the sustenance of their progeny. To exterminate the species, which is a thing not impossible, we must not confine our labors to the cultivated trees alone, but follow them wherever they riot, and attack them in the egg. They are then most easily and safely destroyed, especially on small trees. The clusters of eggs can very easily be detected after the leaves have fallen in autumn, and at any time after prior to their hatching in May, and may be removed without difficulty by the thumb and finger, or by clipping off the

twigs whereon they are deposited with shears.

The course adopted by several European governments in reference to the destruction of noxious insects, based as it is on sound scientific and natural principles, and having the greatest good of the public in view, is certainly most commendable. If Massachusetts would offer a liberal bounty for all the eggs of the tent caterpillars, sent in to some designated place or officer, perhaps a dollar or two per quart, or enough to give a handsome remuneration for collecting, we should soon see a marked diminution in the numbers of this destructive insect, and corresponding good resulting to the general public, as well as to the fruit-growers. Children might gather them with ease from the wild cherry shrubs in the thickets and woods and by the roadsides; and if properly rewarded would do it with as much interest as though they were blueberries. It is evident that if this course were to be adopted by the New England States generally, and followed for a series of years, these insects would be here no longer in such destructive abundance. J. A. A.

Springfield, Dec. 8, 1863.

For the New England Farmer.

NATURAL SCIENCE IN COMMON SCHOOLS.

How can the Study or the Reading of Lessons upon the Eleof Natural Science find a place in the Common Schools of New England?

Very many people are willing to admit that something of the study of the elementary facts and principles of natural science might be very pleasantly and profitably introduced into the common schools, if there were any room for them. But, they say, there are too many things studied in the schools now; even these are not well enough learned; and to introduce a new study would be absurd; it would be like pouring more into a vessel already too full.

Let us see. I advise every parent who is anxious for the best education of his children, to examine carefully the text books in arithmetic which are now used; to consider the immensely numerous questions which are to be ciphered out and answered, and the rules which are to be committed to memory. I think he will be obliged to conclude that there are vastly too many—four or five times too many—questions to be solved. I think he will be obliged to admit that many of those questions are useless, some of them absurdly useless,—such as will never be likely to occur in the business of life in this world, and some of them such as could hardly ever occur in any conceivable world.

The object of studying arithmetic ought to be to qualify the learner to answer correctly and speedily the questions likely to occur in the transactions of common life. This ought to be done thoroughly, much more perfectly than it is often now done. But to do this would, if a proper selection of questions and rules were made, require not one-fifth part of the time nor one-tenth part of the study which are commonly devoted to this branch. Ask any man of business, How much of the arithmetic you studied in school did you remember twenty years after you left school? How much of it have you ever found applicable to your business? I am willing to leave the decision of the question, How much is necessary? to the answers that will be given to these two questions by the great majority of men of business.

It is a striking fact, most pertinent to this inquiry, that the text-books in arithmetic used as introductory to the highest courses of mathematics in the best scientific schools in the world, the French, the German and the English, are not one-tenth part so long, and would not require one-tenth part of the time to master them, as are the text books and the time devoted to them in most of the common schools in New England. And yet, in the Polytechnic school in Paris, and in the similar institutions in London and in Berlin, admirable mathematicians are made, notwithstanding the brevity of the introductory course in arithmetic.

I say then that, by making a proper selection of the things required to be done in arithmetic, in our schools, four-fifths of the time now devoted to it might be saved, and yet the essential part be much better done than it now is, and children be made better reckoners.

I would not divert from mathematics, in some form, all of the time thus saved. On the contrary, I believe that geometry should be studied in school by all who can possibly have that privilege given them. I would have it studied as the best foundation possible for exact knowledge of form and magnitude, as giving, better than anything else can, an idea of the way in which men have obtained the knowledge of astronomy and the other sciences of distance, and also as furnishing the most faultless specimens that can be furnished of perfectly exact reasoning, of the application of the severest and most rigorous logic. This study is an admirable preparation for accurate thinking, upon all subjects. It has been introduced in some schools; it ought to be, in all; and it might be, and yet leave unexpended a good deal of the time that would be saved by a more judicious arrangement of the lessons in arithmetic.

I would have the parent extend to the study of algebra the same inquiries which I have suggested in regard to arithmetic. What is to be the use of so much of it?

The favorite answer of the advocates of excessive attention to arithmetic and algebra is that it is an excellent discipline to the mind. I admit that the elements of both are a most useful study. I have never been in a school where too much attention was paid to mental arithmetic; and the most useful part of algebra is the mental operation required to put a question into an equation. But, when once understood, the solution is almost entirely mechanical, a statement the truth of which is proved by the fact that the most difficult operations in arithmetic and algebra are performed, most rapidly and with unerring exactness, by Babbage's machine. Indeed, Prof. Pierce, a competent witness, states that many of the longest and most operose of these operations can be perfectly performed, and the results printed, by the machine, far more rapidly than they can be calculated by the most accomplished mathematician, who, after all, would not be sure of the correctness of his conclusion till he had carefully gone over the operation a second time, while the machine, properly worked, never makes a mistake. To perform difficult and complicated operations requires, doubtless, care and patience, but to say that the performance, by the mind, of operations

which can be better done by a machine, is a useful exercise of the mental faculties, is it not to say that it would be an improvement of the mind to become like a machine?

The writer of these communications is not willing that his opinions on this subject should be attributed to ignorance or to dislike of mathematics. In early life, he was more fond of this study than of any other, and more successful in it. In college, he attained some distinction therein, and, two years after leaving college, he was invited back to teach mathematics there. This pleasant duty he performed for about two years, during which he translated, annotated, and prepared for use by the students, a work on the Differential Calculus, a branch of mathematics which had not previously formed part of the studies of undergraduates. He was urged to remain at the college and give his life to this department of teaching. The temptation was very strong. He resisted it from a rising suspicion, which has gradually grown to a settled conviction, that there was great danger of giving too much time to mathematical studies, to the neglect of others far more important. It would lead too far, to state the grounds of this opinion at length. He will only say that all that he has seen and read upon the subject for many years has confirmed him in it.

Upon other means by which time may be saved, in the schools, for higher and more real studies, I shall have more to say in another paper.

G. B. E.

For the New England Farmer.

INFLUENCE OF THE ATMOSPHERE

On the Soil, and on the Animal and Vegetable Kingdoms.

[Read before the Concord Farmers' Club by J. B. FARMER.]

MR. PRESIDENT:—As well might we expect to live and flourish shut up in a glass receiver, with the air exhausted, as to think of any living thing existing on the face of the earth without the atmosphere. Of the fifteen elements that made up more than 99-100 of all known matter, more than one-half are gases, or can be converted into gas. The atmosphere is but a combination of gases, varied somewhat by heat, cold, and other causes.

When Solomon said, "There is no new thing under the sun," his idea might have been, that the elements which compose the leaf, or our bodies, to-day, are the same elements that composed leaves or bodies thousands of years ago. These elements can be changed, but not destroyed. Burn a stick of wood, for instance, and you but change a solid into a gaseous substance, which combines with the atmosphere and is then food for animal or vegetable life. The same is true of all organic matter; the ash only remains. The part that has disappeared will return, perhaps in rain, or shower, to fertilize the soil, or refresh our bodies; or, it may float in the air, and be taken up by the leaf or rootlet of some plant or tree. The elements of creation are the same throughout the world; but may be of a different combination, and affected by heat or cold. Were it not so, what would be the condition of the earth now? The calculation has been made that a thousand millions of human beings die every thirty years, and in addition, there are all the beasts of the field, the fowls of the air, and all the vegetable productions of the earth, that are as thoroughly consumed as by fire. Were it not for the decomposition of all these bodies, by their being turned into gases, and absorbed by the atmosphere, thence reorganized into living things, life to all, human, animal, and vegetable creation, would be extinct.

I trust I shall be pardoned if I make a few extracts from more able writers than myself, as well as attempt to show the effect of the atmosphere *indirectly* on the soil, by showing how it affects animal as well as vegetable life. Loudon, in his "Encyclopedia of Agriculture," says, "manure is useless in a state of solution, if the water so abound as to exclude the air; for then the fibres, or mouths, unable to perform their functions, would soon decay and rot off." Any one of common observation may see the truth of the above quotation. Nearly every spring, in some part of our oat or wheat fields, the grain is drowned out, as it is termed. So sure as the water excludes the atmosphere from the roots, the plant dies, but it would as surely die if the air were kept exhausted by any other means, as it would to keep the soil covered with water. But he further says —"Water is known to be a condenser and solvent of carbonic acid gas, which always exists in the atmosphere, and is carried down by rains and snow to fertilize the soil; animal and vegetable substances exposed to the alternate action of heat, moisture, light, and air, undergo spontaneous decomposition, which would not otherwise take place."

Speaking of pulverization, he says, "A portion of atmospheric air is buried in the soil. This air, so confined, is decomposed by the moisture retained in the earthy matters, and heat is given out during these processes, more especially if manure has been added at the same time, and the process of fermentation will go on faster when the soil is loose, and the interstices filled with air, than afterwards, when it becomes compressed with its own gravity." Of aeration, or summer fallows, he says, "For this purpose if the soil is laid up in large lumps it is evident that it will receive more heat, by exposing a greater surface to the atmosphere. Clay soils, it is said, may be heated to 120°, which may, in some measure, alter their absorbent powers, as to water, and contribute materially to the destruction of vegetable fibre, insects, and their eggs."

In New England, I think well of fall plowing, particularly of clay, peat, and hard, stony soils, which results in a free admission of air and water, thereby favoring minute mechanical division, the water freezing and occupying more space in a solid than in a fluid state, and thus earthy matter is rent asunder, and the soil crumbles gradually to a fine mould.

It is a well known fact, that the atmosphere warms the soil, when light, and well pulverized, to a greater depth than it does one that is more tenacious.

Thus you see that in addition to the gases absorbed by the soil, you have it warmed, and rendered far easier of cultivation, which is a great advantage in all clay soils. Peat, clay, and black soils, are absorbents of atmospheric gases. We cannot but acknowledge nature's powers, heat, cold, moisture and air, as far superior to any instrument of man's invention, for breaking down tenacious matter, and rendering it fit food for veg-

etable growth.

How often we hear persons speaking of meadows: One has a meadow, situated on a gentle rivulet, with a fine, decomposed vegetable soil, producing abundantly whatever crop is on it, while the other complains that his is not worth a cent. He says his is but a parcel of old sticks, leaves, and grass! My friend of the sticky meadow, what is the difference? Have you ever let nature into your bog hole, with her all-absorbing atmospheric team? No? Go, then, and admit her. All you have to do to have her commence her operations, is to clear out your old ditches, and dig new ones, until you have taken off all the surplus water, and she is there, without money and without price, entering every crevice as fast as the water leaves it, and will continue her work until it is accomplished. She sows no seed as man scatters it, but millions are borne by the gentle zephyrs and terrific whirlwind, and whatever is there, she causes it to spring up, and in time to flourish like a green bay tree. There can be but little difference in the elements of the meadows. The one is finely decomposed, fit food for vegetable mouths, while the other is too coarse for vegetable jaws to masticate.

As climate is a state of the atmosphere, I shall not attempt any discrimination, but will try in an indirect way to show its effect on some of the animal and vegetable creation. I have it from good authority, that if sheep, raised in a cold climate, are taken too near the equator, in Africa, the wool of the progeny, if suffered to go much past shearing-time, soon begins to fall off, and hair grows in its place, and will ever remain so. Another example of the effect of climate can be seen in the fleet Arabian horse. When brought to England its offspring soon begins to grow stouter, and gets to be, in a few generations, stout, heavy horses, and *vice versa*, when taken back to Arabia. The effect of the atmosphere does not end with domestic animals. Compare the fur of the polar bear, or other quadrupeds of the Arctic, with those whose home is near the equator. You see in the effects of climate the wisdom of Him who adapts means to ends.

I cannot close my remarks on the animal creation without saying one word about the bird or insect. Who has not noticed the class of birds that take their food on the wing? At times you behold them high in the air, twittering their merry notes. Again you see them in a more silent state, just skimming the surface of the earth. And what of all this? It but shows the state of the atmosphere equally well with the barometer. Insects cannot easily rise in a cold, damp atmophere, and it is certain that if the swallow wants his food he must go where he can find it. Hence his moody state, because the insects are under the leaves of grass to protect them from the cold air, and he cannot get them.

My knowledge is too limited to explain the chemical effect the atmosphere has on animal or vegetable creation, but of the truth of the above statement I have no doubt. In regard to vegetation, I will state one fact that came under my own observation.

A few years ago I noted down the weather for a few months, and in that time my peach trees were in full bloom. The wind being in the north-east for fourteen consecutive days, I noticed that the blossoms remained on the trees longer than usual. This drew my attention to the subject, and I watched the result, which was nearly a total failure of the crop; the peaches never formed. The germ of the young peach turned yellow, and soon fell off. The cause of this, in my opinion, (and that opinion is corroborated by good authority) is, that the cups that contain the pollen never open in cold, wet weather, particularly when the wind is in the north-east. Therefore, there is no impregnation, and thus the truth of the old adage, "A north-east wind blasts the fruit when in blossom."

The above remarks I hold to be correct in regard to all fruits, but as they do not all blossom at the same time, and as many varieties have a succession of blossoms, we do not notice the effect of the atmosphere on them.

Strange as it seems, nevertheless I believe it to be strictly true, that a cold atmosphere is as essential (some part of the year) to produce a good crop of what we term English hay, as manure. Some may ridicule the idea, but you know that when you get far enough south for the ground not to freeze in winter, you are beyond the cultivation of the best of grasses, as they will not grow except in a feeble and stunted way.

Different plants and animals require different food, and a change of atmosphere demands different food for their support. There is wisdom in nature's laws.

The growth in a cold atmosphere is conducive to fat-making principles, while a warm atmosphere possesses more gluten and muscle-making properties; each needed most where nature causes them to exist. Oil for the Esquimaux, and vegetables for the Equatorial regions.

Dividing Sheep Flocks for Winter.—In latitudes where sheep are fed dry feed, and are kept confined to stables and small yards in winter, even Merinos will not bear herding together in large numbers. They should be divided into separate lots before, and preparatory to going into winter quarters. It is better that these lots be made as small as convenience permits, and not exceed 100 each. The sheep in each should be as nearly uniform in size and strength as practicable, or otherwise the stronger will rob the weaker, both at the rack and trough, and drive them about whenever they come in contact. Breeding ewes, wethers and weaned lambs, should always be kept in separate parcels from each other, in well regulated flocks.

Sheep which are old and feeble, late born lambs, etc., had better be sold at any price or given to a poor neighbor who has time to nurse and take care of them. But if kept by the flock-master, they should be put by themselves in a particularly sheltered and comfortable place where they can receive extra feed and attention. This is usually called "the hospital."

English sheep should be divided into still smaller parcels, and with the same regard to age, condition and sex.—*Randall.*

A Bean came up last spring in the door-yard of James M. Garland, of Hookset, N. H., and giving evidence of unusual thrift, it was protected and allowed to spread itself at will; 205 pods matured upon it, containing 1218 beans.

FAILURE OF SEEDS.

Complaint is often made of the failure of seeds, and dishonestly imputed to the grower or vender, where the unfortunate result is attributable solely to the planter.

The germination of a seed in the soil, is one of the most beautiful and wonderful of all the operations of nature, and when contemplated with a scientific eye, will be found to be the result of a concurrence of causes, so intimately interindependent, and nicely balanced, that failure, even where the vital principle is unimpaired and perfect, can scarcely excite surprise. As a result, it may be considered as produced by the combined agency of earth, air, moisture and heat, and in order that the development may be successful, it is indispensable that these elements be duly combined and adjusted in accordance with the specific habits and wants of different kinds of seeds.

Hence it is that culturists frequently encounter no small difficulty in causing some kinds to germinate; and hence, too, the well founded doubts of the anxious husbandman or gardener respecting certain crops, till the appearance of the youthful plant allays his fears by the gratifying assurance that all is well. We offer a brief explanation of the causes occasioning the frequent loss of crops, as is supposed, from the non-germination of the seed. In order to exonerate seedsmen and producers from the unjust imputations of those to whom want of skill and information in sowing is apt to suggest the supposition that they have been imposed on, we submit the following remarks.

In order that a seed may germinate healthily, it must, in the first place, be exposed to the unrestricted and free operations, conjointly exerted, of the three elements, viz.: *moisture, atmospheric air* and *heat*. It is also essential that light be excluded until such time as the nutritive matters contained in the seed, shall have been exhausted, or the root, by having obtained a permanent fixture and position in the soil, is prepared to derive its sustenance from that medium.

In the first place, immediately upon being placed in the soil and covered, the seed experiences a modification of its physical properties; its starch is transformed into sugar, or pultaceous matter, which is the appropriate nourishment of the nascent plant. If at this stage of its development, the surrounding soil should be suddenly deprived of its moisture, the plant would inevitably be destroyed. But with a full supply of moisture, the contents of the seed will continue to swell, until, by degrees, the formation of the future root being completed, the point penetrates the integument, or shell, enveloping the seed lobes, in a downward direction, while about the same time the plumule, or that part which becomes the stem, is evolved, and progressively makes its way upwards to the air, which, with the elements of heat and moisture, are no less essential to its existence, than to the development or germination of the seed.

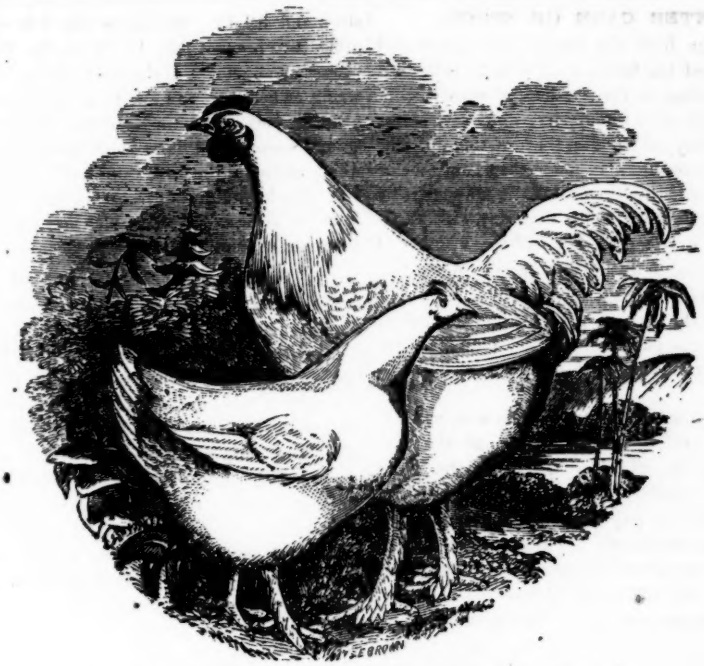
When seeds are planted or sowed, they frequently experience the incipient fermentation, or normal change preparatory to germination, and the earth not being sufficiently consolidated around them, they perish from lack of moisture; or it may be from a too copious supply of moisture, where the ground is humid and unduly retentive around them.

Seeds are sometimes buried too deep, and thus perish from lack of warmth and air. When seeds are of small size, great care should be exercised in the preparation of the soil for their reception. It should be very fine, in which state it will admit of the degree of compression necessary to bring it in contact with every part of the seed, and yet not be sufficiently consolidated to impair its vegetative powers, even in case of drought.

In putting in crops, the careful farmer will consult both the state of the weather and the condition of the soil, and regulate his conduct accordingly. If the surface be dry, and the indications are of clear and dry weather, he will consider an extra amount of covering necessary, for no seed will germinate in a *dry* soil, and that which is moist, and in a condition to retain an adequate supply, exists, at such time only at a considerable depth. But if the weather be cold and the soil wet, he will see the necessity of depositing his seed nearer the surface; it will then be more directly exposed to the vivifying influences of the sun, and be less liable to be smothered by excess of moisture, when the soil is saturated with wet.

Many seeds are so small and the pericarp enclosing the seed lobes so excessively hard, that they generally remain a long time in the soil before germination commences, unless extra care is bestowed in sowing them. By compressing the soil closely around them, this tenderness of development is to a certain extent overcome. But it is more judicious, before committing such seeds to the soil, to prepare them by a temporary immersion in some steep, which will soften the integument, and prepare them for a healthy, and more rapid start.

CHEAP CIDER VINEGAR.—Take the water in which dried apples are washed and soaked, and after carefully straining, put in a vessel; add a pound of sugar, or its equivalent in molasses. Put in a piece of brown paper and set where warm. In a few weeks you will have good cider vinegar. More sugar added, will improve it. The vinegar will also be better, the more concentrated the cider is. The strongest vinegar is made from boiled cider.



A PAIR OF WHITE SHANGHAI FOWLS.

Several years ago there was a sort of *furore* among the people in regard to rearing and keeping fowls. It was not confined to the country, but found more favor in villages and towns than on the farm. It ran its race, however; the fire slumbered; and men, women, and children are quite reasonable again upon the subject. The attention called to it has been productive of more good than harm, we think, as it appears to us that more poultry and eggs have been produced since that fever ran through the land.

There is no doubt on our mind, that attention to poultry on the farm affords more profit on the money invested, than is realized from any other item of equal investment. But the comfort and convenience of having poultry and eggs at hand whenever they are wanted, are sufficient in themselves to recommend their production, even if there were no profit.

The beautiful fowls placed at the head of this article are *White Shanghais.* They have proved themselves to be an excellent breed, as they are of a naturally quiet disposition, come early to maturity, and can be made to reach a large size. Their eggs are of a fawn color. Their bodies are broad and stout, and the legs usually feathered.

As represented in the books, the White Shanghais resemble the Brahma Pootras, in the general appearance of the body, but are entirely unlike each other in the tail. The Brahmas are represented as without tails, or as having nothing more than a short bunch of feathers, which in the rooster flows over at their ends only in a slight degree, while the male Shanghai has a long and flowing tail. There is a difference of opinion among poultry breeders as to the identity of the two. We wish Mr. Ives, of Salem, or some other person, well informed, would give us his views on the matter.

From the numerous accounts sent us, which have been kept with accuracy, we think it safe to say that *one dollar* per head may be reckoned upon as profit, where fowls are properly provided for in shelter and feed.

Honey Bees.—We notice much complaint in our exchange papers from all parts of the country that bees have not done well this season. A correspondent of the Illinois *Farmer*, who had ninety swarms in the spring, did not get a single new swarm the past summer. He has reduced his stock from ninety to seventy hives, and thinks one-third of these will have to be fed more or less during the winter. He says: "I do not think there is a young swarm in this town (Mill Co., Ill.,) that has got enough honey to winter on, nor have half of the old ones. I would say to all bee keepers, sow a few acres of Alsike or Swedish white clover, it is splendid for the bees and it makes the best of hay."

WINTER CARE OF STOCK.

The change from the young herds-grass and sweet clover of the fields, upon which cattle feed just before going to their stalls for winter, contrasts strongly with the dry hay and corn stalks upon which they are fed after they are tied up. The change must considerably affect them, and therefore they should be brought to it gradually, by feeding them once or twice each day with a fodding of such dry food as they will eat, whether of hay, corn fodder or unthreshed grain. When this is done, no habit of the system is suddenly disturbed, and the animal passes from the green, juicy feed of the pasture to its dry fodder entirely, without losing appetite or being checked in growth.

New milk cows, if treated in this way, will not only yield a good flow of milk through the winter, but if young, will increase in weight, if fed liberally and systematically. Steers will perform sufficient labor to pay their keeping, and grow rapidly under the same circumstances. But in order to secure these results, several things must be observed, and among the first are

Neatness and Kind Treatment.

Without kind treatment, entirely aside from the manner of feeding, the stock of the farmer may grow and yield a fair product in labor, flesh or milk, but it cannot be in that profitable proportion which would be the result of kind and sympathetic care, in connection with judicious feeding. A sudden blow, accompanied by loud and angry tones, will not be soon forgotten by the horse or other animal. They have excellent memories with regard to certain things, as their actions plainly indicate if the blow and loud voice are likely to come the second time. If they remember injuries, why not gentle and kind treatment? Even if the animal is refractory, such management is a thousand times better than kicks, blows and scoldings. A stock of cattle that will shun their owner whenever he approaches, that rush out of their stalls the moment they are liberated, as though they expected a rap from a cudgel or the tingling lash, and that are always ready to leap the fence or break down the bars to get out of the way,—may be transformed into mild and obedient animals by the influence of fair and generous treatment. Under such a temperament they will prove of far greater profit.

Neatness and Order.

A practice prevails, to a great extent, of allowing cattle to lie upon their droppings until they accumulated to a disgusting degree upon their sides and thighs. This certainly cannot be healthful or comfortable. When they range in the pasture they are quite careful not to lie in the same place the second time, and this keeps their hair clear, sleek and bright. We know that it is somewhat difficult to prevent this, but it can be done by a proper arrangement of the leanto floor, liberal littering or bedding, and a trifle of daily care. The bedding performs a double duty, as it keeps the animal warmer and more comfortable every way, which promotes the production of milk, flesh or fat. The bedding absorbs the liquids, keeps them from the skins of the cattle, and they thus become an essential item in farm economy.

Importance of Regular Feeding.

Under the head of order several things may be observed, but the most important relates to the *time of feeding*. The practice of throwing feed to cattle at any time when the keeper happens to be at the barn, and doing it at irregular intervals, is a bad one. It keeps them in a constant state of expectancy and excitement. If they are lying down and chewing the cud of contentment, the moment the keeper comes in sight the cattle rise and attempt to hook each other, and the horses neigh and paw as though in violent agitation. And this scene occurs several times in the day, unless the animals are actually eating when the keeper approaches.

A better way is to feed them systematically—at regular hours each day. When this is done, they will soon understand that they are to receive nothing out of those hours, and will remain quiet, even if the person who feeds them comes into their presence every hour. Under such a system the appetite is sharp, but as all are fed liberally, no quarrelling takes place among them.

Hay of an inferior quality should make the first foddering in the morning,—as the cattle are then supposed to be hungry,—and the last foddering at night, when they are to remain many hours without fresh feed. The other fodderings should be in small quantities and continued for an hour or two, and then the orts that remain before them entirely raked away.

Preparation of Fodder.

Most New England farmers have more or less corn fodder to be consumed. When this is properly cured and prepared, it ranks next in value to our best English or upland hay. If allowed to remain too late in the field and get black and weather-beaten there, or if put away too green or damp in the barn, it moulds badly and loses its sweetness and nutriment. A good way to prepare corn fodder—we mean every part of it, toppings, buts and husks—is to run it through the hay cutter and mix with it its own bulk of cut hay of the various qualities on hand; throw the whole into a compact pile, sprinkle with water, add a little salt and mix the whole with a fork. In two or three days, if the barn is warm enough to prevent freezing, the whole mass will be softened and may

be fed out. A little cob meal or other grain added will give the whole a decided flavor and relish, so that cattle or horses will reject nothing but some of the coarser joints of the corn fodder. In this way all the coarser fodder may be used in the early part of winter, leaving the better portions for a later period, when it is supposed the appetite of the cattle is not quite so good. From an experience of many years, we know this course to be economical, while it makes the stock thrifty and productive.

Sunshine and Air.

The practice of keeping cattle and horses in the barn during the day, as well as the night, is becoming quite common. It may be carried too far, as that has been of keeping them in the open yard through many a stormy winter day. Cattle become greatly attached to their accustomed stalls, and will return to them if they can, even in mild and pleasant weather. But they need *sunshine and air*, and should be able to enjoy their invigorating influences for two or three hours every mild and clear day. If this practice is commenced when they are first returned to the barn in autumn, it will soon become a part of their habit, and they will greatly enjoy the change.

There is too much indifference among our farmers in all these particulars. That indifference is money out of pocket. It is far easier to save by system and economy what we have already earned, than to labor to earn more to be wasted by negligence and carelessness.

GREAT DESTRUCTION OF TREES BY ICE.

After an autumn of unusual mildness, and of an unsurpassed forest brilliancy, Old Winter set in with rather a severe grip before the middle of December. Up to the 25th there was no driving storm, such as we sometimes have, accompanied with severe cold, but a dry, low temperature with the thermometer vibrating about zero for several days in succession. This state of the weather was preceded by a mild snow storm which soon changed to rain within fifteen miles of the sea coast. Beyond this, and south-west for a distance of forty or fifty miles, and a breadth of less than twenty miles, north and south, the rain froze upon everything that it touched. The ground was soon cased in an icy covering, which has continued to cling to it like the shirt of Nessus for more than a week, without abating a jot in its brittleness or brilliancy. Nothing can exceed the grotesque forms everywhere presented by the bending trees, or the brilliant scene by sun or moonlight. We find in the Boston *Journal*, the following:

Destruction of Trees by Ice.

The slight snow storm which occurred in the region of Boston, on Thursday, the 17th inst., ended in a drizzling rain twenty miles west of the city. It commenced raining Thursday evening, continuing through the night and most of the following day, Friday, and froze as fast as it fell, to everything it touched. When the sun was unclouded for a short time on Saturday, the spectacle presented was truly magnificent. The late sylvan was suddenly transformed into a *silver* world. Everything was covered with glittering ice—fields, fences, shrubs and trees, and when the wind slightly moved the latter, the noise made one think of the clatter of ten thousand cavalry scabbards, or the rush of mighty waters. But the sight, gorgeous and pleasing as it was, was attended with the greatest destruction of trees by ice that has ever been known in the memory of a veteran agriculturist. Before noon, on Saturday, limbs, varying from one inch to ten inches in diameter, began to fall from the grand old elms in every direction. Sometimes the entire side of a splendid tree would go down, leaving the other whole; in others, limbs would fall from different parts of the tree, while in many cases nearly every branch would be broken from the top, leaving nothing but slivered stubs pointing to the skies. In the afternoon some of the sidewalks and highways became so obstructed that men were sent out with axes to clear away the ruins—some of the branches being too heavy for two men to move out of the roads. Some dwelling-houses were injured by the falling masses—in one case twenty or thirty feet of the covering was rent away, slating torn off, and the house otherwise injured.

In some places the roadsides present a most interesting appearance. The white birches, all sparkling with their diamonds, are bent over on each side toward the road, their tops reaching into the carriage-way, while their pendulous branches hang on every side, forming the most grotesque arbors and arches imaginable. By the moonlight they remind one of the fairy tales of the East—of vast halls peopled with supernatural beings and glittering with ethereal lights. But the sudden crash and the moanings in the forest, proclaim the fact that our old and splendid shade trees are rapidly coming to the ground. Elms suffer most, having long and sweeping branches. Willows and locusts are also badly broken. Fruit trees are not yet much injured; but all are still covered with thick ice. On some of the maples, every little twig holds a ball of ice as large as a good sized walnut, and from the under side of the ball icicles of various lengths are suspended. A brisk wind, while the trees are in their present condition, would work wide-spread ruin among them all. A friend weighed a branch with the ice on, and found it fifteen pounds. On thawing off the ice the branch weighed less than two pounds.

The above description does not exceed the reality of the case. Indeed, it would be difficult for the freest pen to do so. The account, however must refer to the country west of the city, as no ice made there upon the trees.

DURING the month of August the value of the government horses brought from Canada and entered at Detroit was $135,000. During the quarter ending October 1, the whole number there was 3167, worth in round numbers $200,000.

EXTRACTS AND REPLIES.

CULTURE OF TOBACCO.

On taking up the *Monthly Farmer* this morning, my attention was arrested by the remarks of "Franklin," on the "cultivation of tobacco." The inquiry arose, whether it is worth while to grow it at all? Is it not a crime to waste our lands and strength in growing that which benefits no one? It is admitted by many that the use of tobacco often does a positive harm. I have known many whose mind and person have been seriously impaired by the excessive use of tobacco. I now have in mind a near neighbor, a man of independent fortune and estimable family, who is an inmate of an insane asylum, solely from the excessive use of tobacco, in the form of a cigar! One such case should be sufficient to deter others from the habit of smoking.

Dec., 1863. ESSEX.

SETTING AN ORCHARD.

I am about setting an apple orchard, and wish to inquire of you or some one through the *Farmer*, who has had experience in orcharding, whether the New York trees will do as well as those grown near by? The piece I have selected is on a hill and bad to get manure on. It is, or was, a rich, deep soil, but when new was plowed and cropped without manure, until nearly exhausted, and then turned into pasture, and has remained so some fifteen years. I think of putting on ashes and mulching with brush muck and leaves, as it is near a wood lot. How will that do? Is there any thing better? How thick should I set them?

Woodstock, Vt., Dec., 1863. C. F. LINCOLN.

REMARKS.—We have never set apple trees brought from Western New York, and cannot speak of them from any actual experience. They have been set in our neighborhood, and when treated properly have succeeded well. We have set several hundred pear trees from the New York nurseries, which have grown finely. Apple trees should be set at least thirty feet apart; some persons prefer a still greater distance. The ground should be thoroughly plowed, and the holes dug eighteen inches deep and five or six feet in diameter, so that in setting the trees there may be ample room to extend the roots in every direction, on a fine, rich soil. If the field, if in sward, is planted and cultivated one year before the trees are set, the work of setting can be more easily, and will probably be better, done.

For the New England Farmer.

LEARNING FROM EXPERIENCE.

This is a source of information especially valuable to the farmer. Nor yet need it conflict with the knowledge derived from books, as some would have us believe. For a book is often but a transcript of the author's own experience. Book-farming, as it is termed, is only to be denounced when a new novice in the business lays out and attempts to execute his plans entirely "by the book," without consulting his own or others' judgment as to the adaptation of means to ends. It is very much like investing in a farm that looks rather better in the advertisement than on the premises; or as it used to be in reference to city lots, that the luckless speculator in the far West found only to exist on paper. No writer on agriculture, as I take it, claims to be infallible, so as to render superfluous the exercise of one's private judgment. And no matter-of-fact correspondent of the *Farmer*, even, can expect that any theory he contributes, or any result of his particular experience will be accepted as law for all. It is only claimed that every interested reader should be liberal enough to "prove all things and hold fast that which is good." Circumstances, too, alter cases, and what this and that man may confidently recommend, after successful trial, may fail in another man's case, simply because the circumstances are changed.

I have often wondered that so many diverse theories have been woven by philosophers in their closets, to catch the fancy of that class of men whose life is so much out-of-doors. No individual can have so little need of "such stuff as dreams are made of" as the plain, blunt farmer. And only let him suspect that an author has had no personal experience of what he writes about, and he regards him as one that "darkeneth counsel by words without knowledge." Moreover, the reason is obvious why the amateur farmer is so liable to ridicule and failure. His ideas on the subject are very apt to be analagous with dreams of Arcadia, and rural pictures that look so refreshing on canvas, and so alluring to the summer tourist amid green fields, and grand old woods. But when he comes to the homely reality of handling the subject without gloves, or cosmetics, the romance of it is taken out with the starch, and he beats an ignominious retreat. Let us not be understood as disparaging that class of men who retire from business in the metropolis to some estate in the country, where their means enable them to enjoy the sweets of rural life, without its drudgery. Many such have come to be model farmers, reclaiming many a barren waste by their cultivated taste and liberal expenditures, causing many an old village to "look better than new," and distancing all competitors at the agricultural fair. It is only the "snob," or degenerate "sprig of gentility," that lays himself open to the contempt of every honest tiller of the soil, when transplanted thither, by talking flippantly on what he knows nothing about, and affecting to live in clover, while feeling above sowing the seed.

There must be a beginning to life on the farm, and still everything does not depend, as it seems to me, on the start. As time passes on the old adage comes in play, "live and learn." One year goes by, and leaves behind its lessons of experience, richer than all the garnered fruit and grain. The man may not have realized from this first trial the full fruition of his hopes. The seed-time may not have been propitious as he had calculated, or the mildew, worm and untimely frost may have conspired to dampen his enthusiasm and undermine his faith. But he is not alone in these reverses—hundreds share them with him. And yet they are not discouraged, for experience has taught them to expect alternate good and evil fortune. This same schoolmaster will instruct him—and how many men in this world have gone through years of reverses and all been thankful for the experience thereby gained! But we are not necessarily taught from this source to expect failure—but rather how to avoid it in time to come. We have gone the round of the twelve months, and now are about to traverse the same cycle again. We have the "lamp of experience" to light our path. It reveals, also, our mistakes and blunders in the past, and indicates now a better way. It shows in bold relief the rock, perhaps, on which we have once been wrecked, and, like a skilful navigator, we will heed the warning light, and this time steer clear of the breakers. Thus every year we may grow wiser to win success, and escape failure, though, all the while, reminded

that uninterrupted prosperity in this life of discipline is neither to be expected nor desired.

Farmers, as a class, are not great readers, simply because they have not the time or means for this end, but every one has at hand his volume of experience; and I, for one, have been largely indebted in this respect to one and another who had little "book-learning," and only a common school education. They confessed themselves illiterate, but knew enough to keep their journal of the weather and crops, year after year, until it had become a most valuable book of reference. Besides this, they had accumulated a fund of information, more precious to them than libraries, because all gleaned from their own personal experience; and an encouraging word or two would unloose their tongues, and render it a privilege to sit at their feet and learn wisdom. Some poet has said that,

"Old experience doth attain
To something like prophetic strain."

And this is why old men do sometimes seem invested with the gift of prophecy. Why should not a man that has reached his three score years and ten, and can look so far back over the past, be able to look farther ahead than those whose experience is but of yesterday? The ancient prophets we are wont to regard as men of heavy locks and wrinkled brows, and venerable aspect generally. Their far-reaching vision was of course due primarily to inspiration; and yet their long experience of men and events must have contributed not a little to their deep insight of the future. No wonder, then, we have this injunction, "thou shalt rise up before the hoary head, and honor the face of the old man!" But with all this deference to age, let me caution the well-meaning farmer against a mistake made by the infidel Hume. He disbelieved in *miracles*, because he never had any *experience* of them. So some better men then he will have no faith in this and that miracle of agriculture, because such phenomena had never fallen within their own experience, or that of their fathers before them, and thus they keep moving in the old ruts which will by and by be worn so deep that they must halt, while the world moves on without them. W. E. B.

For the New England Farmer.

HOPKINTON, MASS.

How it got its Name—Its Manufactures—Good Highways—Investments in Farms and Stock—Agricultural Reading—Little Cedar Swamp Drained under the Law.

"Tot conjecta manu prœruptis oppida saxis."
So many towns upreared by hand on cragged rocks.

On many a rugged New England hill, so sterile as to be almost valueless for cultivation, we find a flourishing manufacturing village and an industrious and thrifty people. Such towns are happy evidences of the enterprise and perseverance of our people. The growth of a town situated on the bank of some noble river, furnishing ready facilities for communication, and an abundant water power, is easy and natural. Lowell, Lawrence, and Webster are instances of such a growth. But there are towns which have been blessed with none of these promising beginnings; which nature has slighted and left without a dowry, that have called to their aid the power of steam, and through the inventive genius of the people have achieved a name in commerce and a place in the records of industry. Of this latter class is Hopkinton, situated on a ledgy ridge in the southwest corner of Middlesex county, twenty-eight miles west south-west from Boston. It was originally an extensive tract of land known among the Indians as Maguncook, and famous for its rich hunting grounds. Although not permanently settled until 1710, its history commences as early as 1657, and is interwoven with that of the University at Cambridge.

A gentleman in England by the name of Hopkins, an ardent lover of learning, became deeply interested in the bold project of establishing a college in the wilds of America, which the Puritans had formed, and at his death in 1657 bequeathed eight hundred pounds sterling to Harvard College and the grammar school at Cambridge. This money was invested in the tract of land just described, which, in honor of its donor, has since been known by the name of Hopkinton, under which name it was incorporated in 1715.

The only endowments which nature bestowed upon it were, wood, granite, and the mineral springs at the west part of the town. These are three in number, each differing in properties from the others. They have been a favorite resort in the summer months until 1862, when the hotel was destroyed by fire.

Hopkinton is engaged in that branch of labor which, according to the late census, employs a larger number of operatives than any other single branch of American industry,—the manufacture of boots and shoes. In reference to the number of cases of boots annually made up and sent to market, it has but one rival in the State. During the past five years, great improvements have been made in the machinery used, and in the methods of manufacture. The application of steam power has been of some advantage, although not available to so great an extent in this as in many other branches of industry.

Situated aside from any line of railway, and realizing the importance of rendering the means of transportation as easy as possible, the town has paid especial attention to the improvement of its highways, and has discovered that the inexhaustible beds of granite which abound here are the very best material for roads. It has purchased and has now in successful operation a crushing machine, operated by steam, which converts large blocks of granite into rubble with a rapidity that is truly astonishing.

Having intimated that the natural resources are limited, the reader will, perhaps, conclude that agriculture is little attended to. But the spirit of enterprise is diffusive, and manufactures always encourage agriculture. The demand for farm products, which is created by a community of mechanics, stimulates the farmer to improve his soil and multiply its products. We trust that the yeomanry of Hopkinton understand this sort of philosophy, and are not blind to their own interests. Although they have invested only $440,000 in farms, stock and implements, there are signs of progress among them. They have a farmers' club, which holds semi-monthly meetings, and an annual exhibition. They have also an agricultural library, and besides a goodly number of other agricultural papers, a club of seventy subscribers to the *New England Farmer*. These things betoken reading, thought, and discussion, which are precursors of right action. And it is

one of the objects of this article to present a brief statement in relation to a work which they have had in progress during the past two years, hoping that others in the same circumstances may profit by their example.

THE IMPROVEMENT OF LITTLE CEDAR SWAMP.

This name is applied to a tract of low land one mile in length and of variable width, comprising some two hundred acres in the east part of the town. This land has been usually covered with water during a portion of the year, and has produced only a small quantity of very inferior hay. It is the property of eighteen proprietors, a part of whom having given the subject considerable thought, have long desired to make the experiment of thorough drainage, but being unable to convince all the owners of the expediency of such a movement, were not able to get the enterprise started. They resolved in the summer of 1861 to avail themselves of the provisions of the law for the improvement of meadows and swamps. (See chapter 148, page 750, General Statutes of Massachusetts.)

Their petition to the Superior Court was answered by the appointment of William F. Ellis and Elias Grout, of Ashland, and David Fiske, of Framingham, Commissioners, to prosecute the work. The first named gentleman being a civil engineer, and the other two having had experience in improving meadow land, the appointment was considered peculiarly appropriate. The parties were heard, a survey made, a plan agreed upon, and about five hundred rods of ditch opened. The main channel is four feet in depth, and eight feet wide at the top and six at the bottom. The other ditches are four feet in width and of depth adapted to grade.

As these ditches extend entirely across the meadow, each proprietor can connect cross ditches with these and drain his own land and make such improvements as he deems for his interest; it being the design of the Commissioners to proceed only as far as the protection of the law was necessary, leaving the completion of the work to the parties interested. The cost of the improvements already completed is estimated at five hundred dollars, which is assessed upon the owners in proportion to the benefit which each receives. A small plot of this land has already been plowed, and was planted with potatoes the past season, but in consequence of the severe rains did not succeed. A plot which was topdressed with sand two years ago produced a superior quality of hay the past season.

The question which the proprietors desire to have answered now is, How is this vast tract of meadow to be reclaimed? Shall we plow it? Shall we burn it? Shall we dress it with sand? And if so to what depth? At what distance apart will it be necessary to cut cross ditches? Replies to any of these queries are respectfully solicited by the proprietors. VIATOR.

THE PINE LEAF SCALE.—Some time back Mr. A. A. Crampton, of Coal Valley, Ill., forwarded to this office a number of Scotch pine leaves, *(pinus sylvestris,)* covered with insects which he says "are destroying his finest trees, causing the leaves to turn yellow and fall, the tree ultimately dying." —*Prairie Farmer.*

WOOD ASHES AND CHARCOAL FOR WHEAT.

In a paper read some years since before a meeting at the State House, Albany, N. Y., Dr. LEE, an able friend of agriculture, presented some very valuable suggestions relative to wheat culture. In the analysis of Sprengel it is asserted that the *mineral* proportion of it amounts to only about three per cent. of the whole; and that in wood ashes we have very nearly the same mineral ingredients, and in almost precisely the same proportions. Hence the inference that soils most deficient in wheat growing principles would be greatly benefited, if not actually made capable of producing excellent crops, simply by a small dressing of ashes.

As regards charcoal, the expense of supplying a sufficient quantity to the soil would not be large. Charcoal is not a manure in itself, properly so considered, but merely a *caterer* of *pabulum.* Twenty bushels of finely pulverized charcoal to the acre, would probably be sufficient for most soils, and as, from its well known indestructibility it endures unchanged for years, the application would scarcely require repeating oftener than every eighth or tenth season, to produce unmitigated, its most salutary effects. As regards ashes, Dr. LEE says: "Being but slowly decomposed by the vital action of plants, ashes are an enduring fertilizer when compared with stable manure. Mixed with quick lime, their good effects are more speedily obtained. Lime will render alumina, either in the soil or in leached ashes, soluble in water, so it can enter the minute pores of the roots. Clay in the soil is always combined with a large portion of silica; and before it has been exhausted by continual cropping, it holds in combination considerable potash and soda. Lime, by combining with alumina the basis of clay, liberates these alkalies and silica, which uniting chemically, form soluble silicates of potash and soda." These also enter into the circulating nourishment of plants, and are decomposed in the stems of grasses and cereals. The silica goes to make vegetable bone, to keep the plant upright; while the potash and soda go back to the earth, to dissolve, as before, another portion of *sand* to be also absorbed and transformed into *bone.* It is in this way that a few ashes, applied to a sandy soil, will enable grass and grain to take up the eighty-one per cent. of flint found in their ashes. Lime will do the same thing on clay soils, for the simple reason that they generally do not lack potash, soda and magnesia."

In relation to the organic elements of this vegetable—a subject as yet but imperfectly understood by the great mass of practical agriculturists, Dr. L. remarks:

"I come now to speak of the organic elements of the wheat plant, which, as I have already intimated, form ninety-six or ninety-seven per cent. of its substance. Water and its constituents, oxygen and hydrogen, carbon and nitrogen, are the four elementary ingredients of all cultivated plants, besides their minerals. As there is no lack of water or of its elements, oxygen and hydrogen, our attention will be confined to obtaining a full supply of carbon and nitrogen. These are indispensable, and, fortunately, nature has provided an amount of carbon and nitrogen in the air, if not in the soil, more than equal to all the wants of vegetation. A large portion of the fertilizing elements of vegetable mould, in a rich soil, is carbon, and a small portion is nitrogen; both of which are usually combined with other substances. These important elements are often nearly exhausted in fields which have been unwisely cultivated; and I have paid much attention to the subject of cheap and practical renovation. By the aid of clover and buckwheat, dressed with gypsum, ashes, lime, or manure, and plowed in when in blossom, much can be done in the way of augmenting the rich vegetable mould so desirable to a certain degree, in all soils. Straw, cornstalks, leaves of forest trees and swamp muck, made into compost with lime and ashes, are of great value. Charcoal, well pulverized, and saturated with urine, I regard as the cheapest and most useful fertilizer that can be applied to a poor soil, for the production of wheat, or almost any other crop.

The earths contained in charcoal, as the analysis of its ashes demonstrates, are identical with the earths found in the wheat plant. Coal contains a very large portion of carbon, and will imbibe from the atmosphere a large quantity of nitrogen in the form of ammonia and its carbonates. Unlike stable manure, the salts of lime, potash, soda and magnesia, it will not waste by premature solution nor by evaporation. On the contrary, it is of incalculable value to mix with the liquid and solid excretions of all animals; to absorb and fix in a tangible condition those volatile, fertilizing elements, which are so prone to escape beyond our reach."

DE SANSURE found that charcoal formed from box wood, in twenty-four hours absorbed and retained within its pores, the following volumes of the several gases below named:

	Volumes.
Hydrogen	1.75
Nitrogen	7.5
Oxygen	9.25
Carbonic oxide	9.42
Oleflant gas	35.
Carbonic acid gas	35.
Nitrous oxide	40.
Sulphuretted hydrogen	55.
Sulphurous acid	65.
Muriatic acid	85.
Ammoniacal gas	90.

It may be here proper fo present an analysis of wheat, and for this purpose we select the following made by the celebrated BOUSSINGAULT. The wheat was dried at 230° *in vacuo*, and was found to contain,—

Carbon	46.1
Flydrogen	43.4
Oxygen	5.8
Nitrogen	2.3
Ash	2.4
	100.0

Before taking leave of the subject we will say, that the evil called "smut," so generally and justly complained of, is not probably utterly irremediable. If the seed be *thoroughly* purified by washing in clear water, and then soaked in solution made of lye from common wood ashes, common salt, saltpetre, potash, glauber salts, and of unslacked lime, of a specific gravity adequate to fairly float a common hen's egg, the germinating power of the *smut* will be destroyed, and the produce of the crop uncontaminated by the disease. The above salts are of a cleansing and caustic nature. Wheat from the same bin, sown without this preparation, and in contiguous fields, has been rendered worthless by smut, the crop from the prepared or cleansed seed being pure.

ALARMING DISEASE AMONG STOCK.

The Stockton (Cal.) *Independent* says, that on the range of the Mormon slough, about eight or ten miles from this city, a disease has recently attacked both horses and horned stock, which generally proves fatal in the course of from twelve to twenty-four hours after the animals are afflicted.

One farmer has lost about $3000 worth of cattle, and others have suffered greatly. First they are taken with a sudden swelling, then become blind and stupid, then drop and die. Mr. Perryman has lost seven head of cattle; Mr. Kennovan, four head; Mr. Rogers, two head, and several other parties have been sufferers. A cow belonging to Mr. Thornlow, one of our Supervisors, dropped down and died suddenly, having exhibited the symptoms above described but a short time, and when the animal was flayed and dissected the flesh appeared as if it had been battered and bruised, so bloody was its surface found. Mr. Wolf, who has had much experience among stock, gives it as his opinion that it is a species of virulent erysipelas. He believes that the disease should be treated in a manner calculated to check erysipelas alone, as he has observed that the epidemic afflicts cattle and horses in the exact way that the above named disease affects the human family. If the disease prevails to any great extent it will prove a great calamity to our country, as it contains a large quantity of very valuable stock.

SONG OF THE SPARTAN MOTHER.

Away with all sighing! away with all tears!
My boy shal behold, not my grief, but my pride;
Can I faint his young manhood with womanish fears,
When the flag of his country is scorned and defied?
I will arm him, and bless him, and send him away,
Though my heart breaks with grief when he goes from my sight;
I will bid him not falter or blanch in the fray,
But fight to the death for the Truth and the Right.
I must teach my brave lad what it is to be true
To the Red and the White and the stars in the Blue.

'Tis to love the mild rule of the land of his birth,
To succor the weak in the thrall of the strong,
To honor all manhood, to cherish all worth,
To further the right and to baffle the wrong,
As the nations throng onward toward Liberty's light.
From the gloom of misrule—'tis to march in the van,
With God as the leader, with Justice and Right
Perfecting his purpose—ennobling the man.
'Tis a sign and symbol—it is well to be true
To a cause which is beleagued with the Red, White and Blue.

'Tis a Text and a Faith, on the land and the sea,
A Gospel in Peace—Inspiration in War;
A nation's Evangel—a Creed to the Free;
The Scripture of Liberty, Order and Law,
Shall apostates revile what our sires adored,
And the steel of hot vengeance die reddened in dust?
Shall apostles of bondage, of handcuffs and sword,
Trail the pride of the faithful, disheartened in dust?
No, never, while mothers teach sons to be true
To the banner of banners, the Red, White and Blue.

He's my all! he's my treasure! but take him, dear land,
And add him a jewel to Liberty's crown—
One hero the more for your patriot band—
The widow's last mite to the nation's renown.
For I'll arm him, and bless him, and bid him go forth,
To take his proud stand in front of the wars,
And add his own blade to the swords of the North;
Unsheathed for the triumph of Truth and the Laws,
For his brave heart has learned what it means to be true
To the Stripes and the Stars in the union of Blue.

N. Y. Evening Post.

For the New England Farmer.

A SKETCH OF FRANKLIN.

"The thunders of a mighty age
May drown the voices of the past,
But thou—the printer and the sage—
Thy name shall live time shall last."

The town of Franklin, Mass., was undoubtedly the first town of the name, as it was set off from Wrentham in the time of the Revolutionary war, and when its illustrious namesake was in France. This fact of the appreciation of the Doctor's greatness in its early youth is an honor to the men who named it, and he, in acknowledgement of the compliment, presented the town with a library of books instead of a church bell, as some one had suggested, supposing, as he expressed it, that "the people of Franklin were more fond of sense than sound." Every year as we come around our altars at our annual thanksgivings, we are expressly called upon to pray God to save our respective Commonwealths; and as we pray for them, and as history—that "reverend chronicler of the grave" —treasures up the distinguished acts performed within the limits of larger and more populous regions, may not it be well to communicate to the world the most distinguishing characteristics of our smaller towns?

The town of Franklin is situated about twenty-six miles southwest of Boston. The Norfolk Co. Railroad intersects it, the principal depot being situated in the most thriving part of the central village. The soil of Franklin is mostly light, although some of it is excellent for cultivation. It is something like a cross of the hilly, rocky, springy lands of Worcester and Berkshire Counties, so excellent for grass and orcharding, and the light soil of the shore towns of Plymouth Co. Still, there is considerable done at farming here, and like our enterprising friends of the Cape, we are developing the resources of our meadows by the culture of cranberries, which seem to be the most profitable crop ever raised this side of cottondom. The most important of these meadows is that of Erastus Miller, M. D., of Providence, R. I., a native of Franklin, from which he obtained about 1200 barrels this year. It is supposed to be the finest fresh water cranberry meadow in the world. The Doctor is extending his cranberry grounds; if all our Drs. would emulate the example of Dr. Miller, by investing their surplus capital in the productions of fruit, they would make money by the operation, notwithstanding the fact that it would be the means of promoting the health of their patients more than all their drugging.

The principal manufacturing business done here, is that of straw goods. We have six straw factories, all of which are expected to manufacture this winter. The proprietors of three of these shops have wholesale stores on Broadway, New York, which are wholly supplied from these shops. This would seem to be a rather singular fact, considering that the population of the town is but little more than 2000. There is also something done in manufacturing boots. We have one manufactory, Mr. J. M. Freeman's, while many others make for firms in Medway and Milford. Besides these, the Messrs. Ray, of Unionville, three enterprising brothers, carry on a large business making shoddy. By this means, the appearance of the above named village has more than trebled in importance, and we may suppose its business has met with at least equal success.

I forgot to state that the Dr. Franklin library is still partly in existence. Unfortunately, some of the volumes are lost, but the remainder form the basis of a fine new library, containing from 1200 to 1500 volumes of the choicest standard historical and literary works of the age, which is placed at the disposal of every man in town, for a trifling annual compensation; a privilege by the way, which few towns small as this enjoy. Several of these works were written by our worthy townsman, the Rev. William M. Thayer, the talented author of the "Bobbin Boy," the "Printer Boy," (Franklin) the "Pioneer Boy" (Pres't Lincoln,) &c., &c., all of them highly entertaining and instructive books.

It is often the case that a town like this, though small in territory and population, wields a far greater power through its children, over the destinies of the nation, or even of the interests of human civilization, than its unpretending appearance would seem to indicate. Washington, Webster, Clay, President Lincoln and many other of our greatest men were born in thinly settled places. The late Hon. Horace Mann, whose intellectual combat with Daniel Webster is acknowledged by all to have resulted in the triumph of the former, and who received the encomiums of Senators Sumner and Seward, and other distinguished men, as the able champion of education, temperance and freedom, was a native of this town, as was also Judge Theron Metcalf, of Boston.

While education, liberty and Union, the principal elements of American civilization, shall continue to make the Yankee what he now is—the most energetic, patriotic, intelligent, enterprising and successful inhabitant of the earth—may our

little town, as for the last 80 years, continue to bear the name of the Philosopher and Statesman of our country's earliest years, and may she not prove unworthy to bear that name as a monument to the undying memory of his noble deeds and words. And to close. Mr. Brown, if you wish to see a village as neat and tasteful as any of its size, with inhabitants intelligent, industrious and hospitable, call and see us. Furthermore, what is most important of all, we are thoroughly loyal, and, myself included, real black republicans, and emancipationists. MONTHLY READER.

REMARKS. — We thank you, Mr. "Monthly Reader," for your interesting sketch of Franklin, and for the invitation to "call and see us." We have been there, and had the pleasure of talking to your enterprising farmers "in town hall assembled," and of looking into several of the straw manufactories to which you refer in your sketch. But we are all the sharper to see you again for having once been there.

REARING LAMBS.

The rearing of lambs, both for the renewal and increase of the flock, and for the use of the butcher, is a matter which deserves more care and attention than is usually bestowed upon it by our farmers. If the bucks or ewes are not in good condition at the time they are brought together, or if the latter, during the period of gestation become reduced and weak the chances are that the progeny will fail altogether, or at least lack the vigor necessary to carry them successfully through the first winter. We do not mean by "good condition," that the sheep should be fat, for that extreme should be equally as much avoided as the other; but they should be vigorous and healthy, and in first rate store order. A healthy buck should not be required to serve over fifty or sixty ewes, as such a number is a sufficient tax upon his powers; more than this is liable not only to permanently injure the male, but also to produce a feeble progeny.

The period of gestation in ewes is twenty-one weeks; so that, where it is desirable the birth of the lambs should occur early in May, the bucks should be turned into the flocks about the first of December. This period may be varied a little either way, according to locality and climate. As young ewes are more apt to be careless and improvident mothers, neglecting, and sometimes disowning their lambs, more attention is required for them than for older sheep. Many of the English shepherds separate the former in the fall, and serve them a week or two later, in order that the season shall become further advanced, and the lambs less exposed to a chill and adverse temperature. The ewes with lambs should be kept quiet and not subjected to fright or excitement, well fed, and comfortably sheltered. The successful rearing of a fine young flock will amply repay the farmer all his care.

Where twins are produced by some of the sheep, while at the same time others have lost their lambs, it is a good plan to take one of the twins from the former and give it to the latter. Some difficulty is occasionally experienced to get the lamb adopted, but it is usually overcome by shutting it and the new mother together for a few days; and in extreme cases, binding the skin of the dead lamb upon the back of its successor. Bucks, by carelessness and inadvertance, occasionally get mingled with the flock unseasonably, and occasion much trouble, and sometimes loss. We once knew a flock of ewes that got with lamb in September; and, as a consequence, they gave birth to their progeny in February. He kept them sheltered and well fed, making roots and other succulent materials a portion of their food, turning all his barns and out-buildings into sheep-hospitals, and devoted much time and attention to the helpless lambs brought forth in the midst of a rigorous winter. It thus turned out that scarcely a lamb was lost, and at the subsequent washing and shearing, that flock of lambs was the admiration of all who saw them. One of the ewes, after her lamb was born, failed to give it suck, although the udder was distended, and apparently full of milk. On an examination, however, and attempt to milk the dam by hand, a thick fluid exuded, nearly the consistence and appearance of candied honey, which the lamb swallowed with avidity, although its own strength was insufficient to draw it from the teat. The lamb thrived upon it, however, swallowing as it was pressed out by the hand, until, in the couple of days, the milk assumed its natural flow, and needed no further special attention. This instance is cited, not for the purpose of urging the month of February is one propitious to the birth of lambs, but only to show that even an untoward event, if properly managed, may be turned to profitable account.

Where lambs are designed especially for the butcher as early period of birth as is consistent with safety is desirable. Like any other production in the market, early and well-developed specimens command the highest price and the readiest sales. Let us assume as a basis of calculation, for the profits of lamb rearing for the market, the following data in a flock of sixty common woolled, well-developed ewes. These, if properly cared for, will, by offsetting the twins against the losses, raise one lamb each. Setting aside ten of the best yew lambs as substitutes for ten of the oldest dams, whose powers will soon begin to fail, we have left fifty for sale; and the debit and credit sides of our account will stand as follows:

STOCK ACCOUNT.	DR.
To 60 medium woolled ewes at $3 each	$180 00
Interest or investment one year	12 60
	$192 60

CONTRA.	CR.
By 60 fleeces 3 lbs. each at 30c ₱ lb	$54 00
By 50 lambs for slaughter at $1 50	75 00
By 10 ewes displaced by lambs at $3	30 00
	$159 00

This sum is nearly eighty-three per cent. on the capital invested, and by substituting ten lambs annuallo for the oldest sheep, the entire flock is renewed in six years, and therefore subject to no deterioration. In the above calculation it will be observed we have made no account of the keeping of the flock, an important item it must be admitted; but the best figures we could give would only be proximate, and inapplicable to many localities. We, therefore, leave for each farmer to determine for himself. Within any reasonable

bounds the above margin leaves ample room for profit, and we have no doubt our farmers will assent to the proposition when we say, that rearing lambs for the butcher, taken in connection with the fleece of the dam, is a profitable employment where the soil and other circumstances render it available. There are other pecuniary considerations worthy of note in this connection, viz., the rapidity with which a return is obtained, and the regular annual period of its receipts. In the rearing of horses, for instance, several years must be awaited for a full development of the animal, and the interest of the money lost through all the intervening time. Again, the individual instances of casualty and loss will not be so severe. There is a wide difference for instance in the loss, say of half a dozen sheep at three dollars each, and that of a valuable colt worth two hundred. Other considerations might be mentioned equally cogent, but with the above suggestions, we leave the subject at present to the considerations of our readers.—*Exchange.*

For the New England Farmer.

BUMP'S PATENT ATMOSPHERIC ATTEMPERING CHURN.

The inquiry in the *Farmer* respecting this invention, by a correspondent from Fitchburg, has prompted a few thoughts which may be of interest to those who have not yet been victimized by it. I have little to say in direct reply to that inquiry. A neighbor of mine, who has tested it to some extent, is of the opinion that it is easy to operate, but requires considerable time to produce butter. It may or may not be an article worth possessing. Let those who have been so fortunate as to possess it, and have given it a fair trial, judge of its merit and give us their decision through the columns of this paper. I propose to speak of the manner in which it has been introduced to many of the farmers of Worcester county, with whom I have conversed, and who invariably set down the churn as a humbug, and the agent who brought it to their notice as a swindler. This agent commenced operations in the fall of 1862, and during the last winter and spring canvassed all the best farming towns in the county. His plan of operation was something like the following: Upon arriving in town he inquired who kept the largest dairies, and having obtained the names of such, first applied to the most credulous and presented his cause, describing the construction and action of the churn, and claiming for it a great superiority over all churns now in use, or ever to be invented. It was something which needed only to be seen to be admired, any one who should once witness its operation would be considered decidedly idiotic if he did not throw away his old churn and purchase the wonderful invention. All the farmers in town would want one of those churns, and he was willing to dispose of the right to sell it to them for sixty dollars. He proposed to divide the stock into twelve shares of five dollars each, and having formed a club of twelve persons to give each a certificate entitling him to one share in the right to make, sell and use the churn in that town. If the person selected for the first victim was sufficiently credulous to drink in the lubricating words of the stranger, as freely as the ground drinks in water, he, of course, passed over the V, and received his certificate; or if the ready cash was not at hand his note was equally acceptable. But if timorous and unwilling to be the first to subscribe to a prospective fortune, he need only promise to take a share if Squire B. did so, and the scheme was initiated. Squire B. was next approached and his name obtained at any sacrifice. If he could not be led to see the value of five dollars in the patent, *four* would be accepted, or if he were peculiarly obstinate an old churn would be taken in exchange, and at a price which would reduce the cost of the patent to so small a figure that, for the sake of encouraging a progressive enterprise, he would make the venture. I have even known an instance where a suspicious deacon, the president of the farmers' club, received his certificate without paying anything whatever. Having obtained the names and influence of two or three leading citizens it was not difficult in any town to complete the club at some price, and collect from forty to fifty dollars in cash and notes in a short time. The notes were usually disposed of to some person in town at a considerable discount, and the stranger made his exit, promising to forward the churns immediately. The farmers waited anxiously until the time appointed for their appearing, but they did not come. Days and weeks passed, and still they were not; they began to mention the matter to each other, and were surprised to find that such a variety of prices had been paid and that they differed in their ideas of what they were to receive. Some supposed that in buying the patent they had also secured a churn for their own use. But a few of the wiser sort had probed the matter deeper, and understood that the five dollars secured only the patent right and that the churn, *de facto*, must be paid for at the cost of manufacture. They wrote to the agent in regard to the delay and were informed in reply that in consequence of a rise in materials the churn could not be furnished at the price agreed upon, and they would not be forwarded until he received the advanced price.

That the goods were a different thing from the patent was now evident to all. I am told that in some towns the matter has been followed up until the churns were furnished at the price agreed upon, although the farmers were obliged to pay the cost of transportation, and sometimes to take the goods in a damaged condition. But in most places the people had not sufficient confidence in the agent to place any additional funds in his hands, and consequently have remained as well satisfied as they could with the possession of the *patent* and—their old churn.

I am not disposed to dwell upon the details of this interesting transaction, but a passing comment may not be out of place. Every operation of this sort leaves behind it a feeling of bitterness prejudicial to the introduction of improvements. The generality of people do not use as much discrimination as they ought. Why should an intelligent farmer, who ought to have opinions of his own and to weigh every matter in the balance of his own good judgment before making a decision, sit, spell-bound, in his hay field and listen to the syren song of some pretender who has obtained possession of a few nice words of extraordinary size, and by long practice has acquired a tact for rolling them off his oily tongue with the speed of an express train? There is a class of

men who are always anxious to get of every novelty that is presented, and who have faith to believe that each new invention is pregnant with great riches. They dream of wealth while under the soporific influence of the loquacious agent, and in their deceptive ecstacy can almost imagine themselves the prototypes of the patriarch Kilmansegg, whose good fortune is described in a humorous poem by Thomas Hood, from which the following is an extract:

"Tradition said he feathered his nest
Through an agricultural interest
In the golden age of farming;
When golden eggs were laid by the geese,
And Colchian sheep wore a golden fleece,
And golden pippins—the sterling kind
Of Hesperus—now so hard to find—
Made horticulture quite charming.

"Moreover, he had a golden ass,
Sometimes at stall, and sometimes at grass,
That was worth his own weight in money—
And a golden hive, on a golden bank,
Where golden bees, by alchemical prank,
Gathered gold instead of honey."

I have before me a pamphlet published in 1848, professing to disclose a new method of making manure. It claims to show how to convert almost everything on the farm into a rich fertilizing compost, which costs next to nothing and is capable of being increased to an unlimited extent. The system is somewhat complicated, and requires the building of vats, drains and other appurtenances.

This pamphlet cost the owner five dollars, and I doubt whether he ever read it through; and although a goodly number of farmers purchased the right, I have not been able to find, after the lapse of fifteen years, a single farm where this method was applied. But, says one, I obtained some good ideas from Bomer's Method. No doubt of it, but would you not have obtained more information for the money if it had been invested in standard agricultural books?

A few years ago a new variety of corn was hawked about the country at a ninepence per ear, which was recommended to yield several hundred bushels to the acre. Those who tested it found themselves in possession of a large supply of *green corn* at harvest time, but very little of the full and ripe corn. A marvelous potato appeared soon after, which was too costly to be sold by the bushel, and therefore was disposed of at a certain price *per eye*. The only advantage ever derived from it was the opening of the eyes of those who bought it.

Many farmers have been deceived by the agents of irresponsible nurserymen, who, with a beautiful picture-book and a smooth tongue, have sponged a large order from them, and then forwarded such trash as a nurseryman at all anxious for his roputation would have discarded from his grounds as worthless. And rather than be called *mean* by the cheeky agent they have paid the bill and set the trees. How much better to take a day's time and visit the grounds of some responsible nurseryman and make the selection yourself, and know for a certainty that you have secured the varieties which you desired, and which the labels on the trees represent them to be.

It is not the intention of the writer by these remarks to throw out the impression that *strangers* are always imposters. Far from it. In many business transactions it is necessary to deal with strangers, and as great a benefit may be received from a stranger as from a fellow-townsman. But it is well to remember, that a new man with a new subject for discussion has a decided advantage in his favor. By constant study he has learned how to present *his* side of the subject in the most favorable light possible. And as the same objections will naturally arise in the minds of different people from hearing the same story told in the same manner, he has learned how to answer or evade every objection that is raised. Let a company of farmers discuss the same subject among themselves and they would be quite likely to arrive at a correct conclusion.

Be suspicious of those who, by much talking, are determined to make you yield,—who flatter your pride, and who propose to give more than a dollar's worth for a dollar. Let no one say that, because he has once been deceived, he will never test anything that is new. He ought to receive new things with a charitable and an investigating spirit, but with discrimination also. VIATOR.

For the New England Farmer.

WHAT ARE GOOD COWS?

MR. EDITOR:—I noticed in your issue of Dec. 19th, an article in which some one says he had a brother in York State, who had two cows from which a half-ton of butter was made annually, for several years, besides supporting a family of three persons, together with all their company, so far as butter and milk is concerned, and made 400 lbs. of pork! These cows are called only good, not extra, and no grain in their feed.

Up here among the granite mountains we think that if the cows are not extra the story is. Furthermore, these cows are said to have been kept on a five-acre pasture, together with a horse, a yearling or two, and an indefinite number of calves, while a portion of the grass goes to seed, and is not fed short in the fall. I do not say I think that is a tiptop pasture, for it may lie spread out in some rich valley. But I do say I wish I owned one like it for a calf pasture.

Honestly, I have no doubt but they have fine cows in York State, and very rich land, cultivated in the best manner. But if the gentleman who is the owner of the cows and the five-acre pasture in question would be kind enough to tell us the precise number of cattle he kept in said pasture, and what amount of fodder, corn, carrots, ruta bagas, or other green feed, the same received, how many months they were stabled, &c., and what a good cow will do there, with ordinary treatment, I shall be better able to form a correct estimate of the value of his pasture, and also of what value the extra kindness is in the dairy line.

Goshen, N. H., 1863. J. M.

HOW TO CATCH SHEEP.—Never seize them by the wool on the back. It hurts them exceedingly, and in some cases has been known to kill them, particularly in hot weather, when they are large and fat. The best way is to avoid the wool altogether. Accustom yourself to catch them by their hind leg, or, what is still better, by the neck, placing one hand under the jaws, and the other just back of the ears. By lifting the head in this manner, a child may hold almost any sheep, without danger to the animal or himself.

REPORT OF THE COMMISSIONER OF AGRICULTURE.

The Second Annual Report of the Commissioner of Agriculture embraces a summary of his doings for the year 1863. In the opening paragraph he congratulates the country that during the past year "a wider territory has been cultivated and a larger yield realized, except where drought and frost interfered, than during any previous year." The amount of the leading agricultural staples produced in 1863 as compared with 1862, is as follows:

	1862.	1863.
Wheat in bushels	169,993,500	191,068,239
Oats in bushels	172,520,997	174,858,167
Corn in bushels	586,704,474	449,163,894
Hay in Pounds	20,000,000	18,500.000
Tobacco in pounds	208,807,078	258,462,413
Wool in pounds	63,524,172	79,405,215

The influx of foreign population has greatly increased during the past year, the report of the New York Commissioners of Immigration showing that the number of immigrants which arrived at that port during the eleven months ending on the 30th of November, 1863, was 146,519 against 76,306 in 1865.

The collection of agricultural statistics, according to the system pursued by the Commissioner during the past year, has been of much importance. The secretaries of agricultural societies and farmers' clubs have furnished much information, and active farmers and business men of all professions have also lent their aid. About 2000 circulars comprising questions have been sent monthly to correspondents in every State and almost every settled county, and the replies, systematically arranged, have been published monthly. About 20,000 circulars have been issued in all, and 70,000 monthly reports have been sent out.

The Commissioner sums up what has been done in the distribution of seeds as follows:

"Pursuing what I regarded as the most judicious and satisfactory course, I imported from England, France, Belgium, Russia, Sweden, and other foreign countries, several hundred bushels of choice wheat and other cereal grains, and several thousand dollars' worth of the most valuable seeds for field and garden culture, including a large collection of such flower seeds as were deemed suitable for our country. These, with an assortment of the choicest varieties of the most desirable grains and vegetables grown in our country, were spread over the country with a lavish hand. In addition to these about 1500 bushels of cotton seed were procured, packed and distributed mainly among the farmers of the west. There was, too, a very great demand made upon the department for tobacco seed, which was not readily found in many parts of the country, but which, fortunately, I was prepared to supply, and by which the wealth of our country was increased millions of dollars. Of the quality of these seeds and their products it is sufficient to say that, in reply to a question proposed to all the correspondents of the departments as to the seeds, the response was universal that the seeds were good and had produced satisfactory results. The whole number of packages of seeds, cereals, &c., distributed, is about 1,200,000. Of these, over half a million were sent or given directly to those applying for them. About 300,000 were distributed to members of Congress, and over 300,000 to agricultural societies. About 40,000 were quart packages of wheat and other cereal grains; about 950,000 garden and flower seeds; about 120,000 tobacco seeds, and the remainder cotton, flax, &c."

In regard to the Propagating and Experimental Garden, the Commissioner reports that it had suffered much in former years through incompetency and neglect; but that these evils are now being remedied as far as possible under the management of a gentleman every way qualified to carry on the experiments. There have been distributed from the Garden during the year about 25,750 articles, comprising vines, bulbs, cuttings and plants.

In regard to the general scope and objects of this branch of the department, the Commissioner remarks that investigations having in view a thorough knowledge of the diseases of plants, should receive attention. The greatest importance of the grape crop has led to an extensive correspondence in regard to the success of different varieties in various parts of the country. In connection with this, a collection of varieties of vines has been made, and illustrations given of various modes of treatment, a feature which is said to be found of special interest to visitors of the garden.

The contracted limits of the present garden are said to retard the development of this object, and it is proposed to enlarge it. "The purposes of a garden, as a proper auxiliary to the department," it is said, "will not be fully answered until a botanical collection and museum is estabished. It is a source of well-founded surprise to visitors at the Capital of the nation, that no systematic attempt has been advanced having in view a museum of native vegetable products, or a general botanical garden of plants."

An entomologist has been engaged for the department, and arrangements have been made to place on exhibition a large collection of insects, companied with drawing and descriptions.

In reference to the appropriation by Congress of $20,000 to test the practicability of preparing flax and hemp as a substitute for cotton, a commission was appointed by the Agricultural Commissioner, consisting of J. K. Morehead, of Pennsylvania, W. M. Bailey, of Rhode Island, and J. M. Warder, of Ohio, who met in Washington, and after the transaction of some preliminary business adjourned to meet again, and report in detail on the subject.—*Boston Cultivator.*

THE WHEAT QUESTION.

Upon this question, I will say that farmers who plowed their old ground last fall, can try the experiment without much cost. Some will fail, no doubt. Many will succeed, in my humble opinion. It is not for my interest to advise farmers to do what would be for their disadvantage. I have stated facts in my own experience. Plowing the ground in the fall exposes it to the frost and air, and insects find a cold berth. The exposure of the soil to air and frost prepares it to support the straw, or my experiment amounts to nothing. The same soil, treated in the same way, in all respects, except it was plowed in the spring, produced a crop of small kernels and broken backed straw. The other stood up like well drilled soldiers, and produced a good kernal. I attribute my success to fall plowing, *early sowing*, and the kind of manure applied in the spring. My stables are plentifully supplied with dry muck and

forest leaves. Upon this, during the winter, a hog is made to labor. He is cheated into working it over by a slight sprinkling of corn or acorns. When the manure is thrown from the stables, I consider manure thus made contains all the elements requisite to grow wheat. I am satisfied with the result.

Many good farmers may doubt the propriety of trying the experiment. Some think there are certain sections not adapted to wheat. That is true, judging from past experience, when cultvated in the old way. Different treatment might change the result. That can be decided by experiment. Theory is often upset by practice.—Z. B. *in N. H. Jour. Agriculture.*

A NEW DISORDER AMONG CATTLE.—R. W. Burt, of Atlanta, Ill., gives the following description in the *Prairie Farmer* of a disease new at least in that section:

The animals affected appeared to look gaunt, and would move and stagger and fall, in some cases not get up again, or if they did, only to fall again and die. On examination some blood appeared about the nose and anus. The veins under the skin were very full; the spleen or melt was very much enlarged, and on breaking the thin skin, or covering, it seemed rotten. The liver seemed unnatural. Large fine two and three year old steers, and cows with young calves, seem to be those attacked mostly. Some fifteen have died. These cattle had been two or three weeks on very luxuriant clover meadows, full of seed. The same disease has appeared on an adjoining farm.

In reply, Dr. Dadd remarks:

From the above description I should infer that the disease alluded to, is, or very much resembles Splenic Apoplexy, a disease which has generally baffled the skill of those, who in this country, have attempted to cure it. What the conditions are, which favor its propagation, I am unable to determine, for I have known it to affect, equally, those which appeared healthy, as well as others, unhealthy in appearance, hence it is very difficult for any one to point out the direct causes of the affection.

DIPTHERIA AND ITS CURES.—The distinguishing mark of this malady from other diseases of the throat, is the formation of a membrane which increases gradually until the patient is strangled to death. It is sometimes accompanied with ulceration and great bodily prostration. To prevent the formation of this membrane is to arrest and cure the disease. The Cincinnati *Post* gives the following simple remedy: In the early stages of the complaint, which is always accompanied with a soreness and swelling of the throat, let the patient use a simple solution of salt and water, as a gargle, every fifteen minutes. At the same time moisten a piece of flannel with a solution of the same kind, made as warm as the patient can bear it, and bind it around his throat, renewing it as often as the gargle is administered, and in the meantime sprinkle fine salt between the flannel and the neck. Use inwardly some tonic or stimulant, either separately, or if the prostration be great, use both together. The treatment, as may be seen, is extremely simple, and, if used in the earlier stages, will effect a complete cure.

EXTRACTS AND REPLIES.

SORE EYES AND SORE MOUTHS IN SHEEP.

I noticed in my flock of sheep, when they came up to the barn, that some of them had very sore eyes, and one of them has become entirely blind. The malady is still spreading through my flock. Many of them are also having very sore mouths. Those that are not affected with sore eyes, have sores, commencing in the corner of the mouth, and spreading upon the edge of the lip, scabbing over, and bunching out like small warts. Can you or any of your readers tell the cause and recommend a cure? CONSTANT READER.

Marlow, N. H., Dec. 29, 1863.

REMARKS.—We hope some of our correspondents, who are engaged in sheep culture, will reply to the above. We have had considerable experience with sheep, but never found a disease like the one described here.

SILK WORMS' EGGS.

For a long time I have been desirous to obtain some *silk worms' eggs*. Can you inform me where they may be obtained, or give me the slightest clue to finding them? I have quite a large nursery of mulbery trees, and wish to engage in the making of silks, but can procure no silk worms. K. Mc A.

Limington, Me.

REMARKS.—We do not know. Will some correspondent reply.

NEW RECIPE FOR MAKING SOAP.—A correspondent of the *Germantown Telegraph* says: We have lately tried a new recipe for making soap—new to us at least—and as we had such success, I thought it would be well to send you the *modus operandi* for the housekeeper's department of your paper.

Pour four gallons of boiling water over six pounds of washing soda and three pounds of unslacked lime, stir the mixture well and let it settle until it is perfectly clear. It is better to let it set all night, as it takes some time for the sediment to settle. When clear, drain the water off, cut six pounds of fat with it, and boil for two hours, stirring it most of the time. If it does not seem thin enough, put another bucket of water on the grounds, stir and drain off, and add as wanted to the boiling mixture. Its thickness can be tried by putting a little on a plate to cool occasionally. Stir in a handful of salt just before taking off the fire. Have a tub ready soaked to prevent the soap from sticking, pour it in and let it set till solid, when you will have from the above quantity of ingredients, about forty pounds of nice white soap, at a cost of about two cents per pound. Housekeepers, try it.

THE PATENT OFFICE.—During the past year the increase of the business of the Patent Office has more than compensated for the falling off at the time of the secession of the Southern States, and enabled the office to pay all its expenses without any further appropriation. This increase is derived chiefly from patents for labor saving machines, particularly agricultural implements, the inventions of which have been stimulated by the detraction of field labor by the war. Numbers of patents have been issued for inventions occasioned by recent discoveries. About four hundred are registered solely for lamps to burn coal oil.

JAVA yields the Dutch government a cool million annually by the traffic in birds nests.

PENNSYLVANIA AGRICULTURAL COLLEGE.

We have just received from President Pugh a copy of the catalogue of this institution for the past year. All the public lands to which Pennsylvania is entitled for educational purposes have been bestowed upon this College, and its prospects for usefulness appear to be very encouraging. One hundred and forty-two students have attended the session just closed. That for 1864 will open upon the 24th of February, and close on the 14th of the following December. The address of President Pugh is "Agricultural College P. O., Centre county, Pa."

Not having leisure at this moment, for a more careful examination of this Fifth Annual Catalogue of the institution, we think our readers will be interested in the following brief synopsis of its facts and contents, by the editor of the *Germantown Telegraph:*

At present the college is managed by five professors, two assistants, one teacher and five superintendents. It is under the care of thirteen trustees: nine elected tri-yearly by delegates from the county agricultural societies of the State, and four ex-officio members. The course of instruction extends through four years. A primary department has been established for such as are not sufficiently advanced to enter the regular college course, and a fifth year for graduated students is added to the course. During this year, the student pursues some special scientific study, having direct reference to his immediate plans of activity in life. The object of the college course is to give the student a thorough scientific knowledge, at the same time that he acquires a good English education, and becomes familiar with the practical operations of the farm, garden and nursery of the college.

Each student is required to perform three hours' manual labor daily upon the college farm; and, by having the students divided into four working details, the labor on the farm is kept up during twelve hours daily.

All the work of a farm of four hundred acres is thus performed by the students. The college building is now completed, and all its museums and recitation rooms are ready for use. Its chemical laboratories are as completely filled with all the aids and appliances for analytical chemistry as those of any other institution in the world, and the course of instruction pursued is similar to that of the best German laboratories. The geological collection of the State Geologist, obtained during his survey of the State, is in the college museum; and all the departments of instruction, so as to embrace all the means and instrumentalities for education in all the natural sciences, and most especially those bearing upon the practical operations of life.

FRAUDS OF SHEEP EXHIBITORS.—In a report of a committee of the New York State Agricultural Society, consisting of Hon. A. B. Conger, J. McGraw and D. B. Hight, we find the following expose and rebuke of the means resorted to by some exhibitors to give their sheep the appearance of a model form which they do not possess:

It is well understood that, for the purpose of carrying out this system, animals designated for exhibition are shorn in mid-winter, not closely nor evenly, but so as to hide their natural defects, or to give undue prominence to certain parts of the carcass. That they are then blanketed so as to prevent their taking cold, and afterwards, and for some little time before exhibition for sale, they are again trimmed, the wool being left, as in the case of most of the animals exhibited at the fair, in some places twice as long as in others.

Your committee consider this a gross deception upon judges who examine only by their eyes, and also upon farmers who are not cognizant of these practices, who become purchasers and undertake the business of breeding, and also a great source of injustice to such as exhibit their sheep after the ordinary system of shearing, as late as the first of June, on an average, and closely and evenly shorn at that.

For the New England Farmer.

USE OF BONES---CROPS AND WOOL IN VERMONT.

MESSRS. EDITORS:—As time has come for me to calcine, or make fine, what bones I may have got together during the year past, I will tell you how I have done it for many years, and if you think best, you may give it to your readers.

When I have got through with killing meat for the year, I have a 90-gallon kettle set in an arch, in which I cook food for my hogs, and in which I try out the beeves' heads and feet. After the oil is taken off, I add what other bones I have to those in the kettle, and fill up with good strong wood ashes, and make the ashes barely wet, not sloppy, but "thick as pudding." I then heat the mass to a scalding point, and keep it so, or as near as I can, for two or three days, stirring it frequently, when the bones will be fine; and if the ashes are really strong, and managed rightly, even the hoofs will all be so nearly dissolved that you cannot find them.

It makes a most powerful manure. It may be applied in various ways; I generally mix it with dry leached ashes, or soil, and sow it broadcast on dry ground, and harrow in with grain. It might perhaps be so reduced as to be put in the hill with corn, but great care should be taken, as it is so strong.

As to the crops here in Lamoille Co., the hay crop was full an average one in quantity; and though later than usual when it was secured, the quality was not so bad as the time of securing would indicate. The wet weather, which made us late in getting in our hay, kept the grass growing at the bottom, so that, on the whole, our hay crop was bountiful, and of good qualitiy.

Corn was a good crop, and sound; oats, middling; wheat, a very small crop; buckwheat and India wheat, middling; potatoes, very uncertain—some pieces very good, and some *very* light,—though I think, from what I have learned, there is a better crop in this county than in this State generally. Other roots, beans, &c., were about as usual. On account of the scarcity of help, there

was not quite the usual amount of land under cultivation.

I need not tell you that the sheep fever rages high in this State. Of course you can't help knowing it. It is almost equal to the *Morus Multicaulis* fever, of near thirty years ago. If some folks don't get their fingers nipped, then I haven't been to a "guessin' Institoot." The few "smart ones" that stop in the right time, will make money by it; but woe to the tail-enders. I rather think it is partly a gum game, and some artificial oil, that makes, in part, the heavy fleeces. That there has been great improvement in the stock of sheep in this country within a few years, I don't doubt. But I don't believe that all the circumstances combined relating to sheep husbandry will warrant the present excitement in the premises. I think we had better raise less gum and oil in proportion to the wool, and more wool in proportion to the gum and oil, than some of these high-priced, fancy sheep are reputed to produce.

Johnson, Vt., Dec. 29, 1863. C. WHITING.

For the New England Farmer.

THE BLACKBERRY.

I have read with considerable interest the "Horticultural Notes" of Mr. Hyde. As a cultivator of small fruits, my experience has been confined mainly to the strawberry, which I find a profitable crop. I made some inquiries last summer in regard to the blackberry, and was invariably informed by men both of observation and experience, that they would vastly rather have the itch than to have the blackberry in their land. In the month of August last, I called on Mr. Francis Dana, of Roxbury, the highly successful cultivator of small fruits, and originator of the "transparent,"—the very best white currant. I conversed with him concerning several kinds of small fruits, and the profits of their culture, not, however, mentioning the blackberry, of which I thought I had sufficient proof of its worthlessness already. Next day, however, I accidentally met Mr. D. in Boston. At his invitation I accompanied him to the horticultural rooms, where he was carrying one or more boxes of the Dorchester blackberry for exhibition. This led to some conversation on the subject, concerning which I afterwards wrote him a letter. From this letter, and from statements which he made verbally, I deduce the following propositions:

1. The Dorchester is the most profitable blackberry to cultivate for the market.

2. The average price to be obtained for good fair berries through the season, may be safely estimated at from 20 to 25 cents per box.

3. The expense of time and labor in cultivating and picking them, and the expense of fertilizing is comparatively small.

4. Everything considered, they are the most profitable small fruit cultivated.

And how can the latter proposition fail to be correct, if the former are?

Mr. Hyde estimates the average value of strawberries per box at 20 cents, through the season. This is two cents per box higher than I have usually been informed by cultivators for Boston market. I sell my strawberries in the country, and thus save the expense of hulling. Some city markets do not require strawberries hulled.

I wish some experienced cultivators of the blackberry would give their experience in regard to that fruit, concerning which so much difference of opinion seems to exist. It would be particularly interesting to hear from some one who has been successful. Mr. Hyde seems to consider the blackberry a profitable crop, and that is all. He speaks in much more enthusiastic language, of the strawberry. MONTHLY READER.

For the New England Farmer.

METEOROLOGICAL RECORD FOR DECEMBER, 1863.

These observations are taken for and under the direction of the Smithsonian Institution.

The average temperature of December was 22°; average midday temperature, 27°. The corresponding figures for December, 1862, were 25° and 30°. Warmest day, the 4th, averaging 42°; coldest day, the 10th, averaging 3°. Highest temperature 46°; lowest do. 2° below zero.

Average height of mercury in the barometer 29.36 inches; do. for December, 1862, 29.28 inches. Highest daily average 29.85 inches on the 7th; lowest do. 28.71 inches on the 14th. Range of mercury from 28.50 inches to 29.90 inches.

Rain or snow fell on twelve days; amount of snow 17.50 inches; amount of rain and melted snow 4 inches. Nine stormy days, with 11 inches snow and 1.59 inches of rain and melted snow in December, 1862. There were two entirely clear days. On six days the sky was entirely overcast.

The changes of the barometer have been remarkable during this month—the mercury reaching a point both unusually high and low, with sudden changes. It will be noticed that the average is much higher than same month last year. The difference in temperature between December this year and last will be noticed. Although there have been no very cold nights, the average is, nevertheless, low. A. C.

Claremont, N. H., Jan., 1864.

For the New England Farmer.

A GOOD COW.

MESSRS. EDITORS:—I own an Ayrshire cow, raised upon my farm, now seven years old, and weighing about 1000 pounds, which gave during the year ending with the month of April, 1863, 13,540 pounds of milk. I was in the habit of weighing her milk, every Monday morning, during the entire year, and calculating for the week, upon this basis. She gave during the last ten days of May, 1862, 650 lbs. of milk; in the month of June, 2100 lbs.; in July, 1950 lbs.; in August, 1800 lbs.; in September, 1650 lbs.; in October, 1550 lbs.; in November, 1350 lbs.; in December, 750 lbs.; in January, 600 lbs.; in February, 480 lbs.; in March, 360 lbs.; in April, 300 lbs.; total, 13,540 lbs; making in measure 1504 gallons. From the milk of twenty-eight days of the month of June, we made 96 lbs. 3 oz. of butter, and during the year, from her milk alone, were made 610 lbs. of butter.

As I am anxious to improve my stock of cattle, any one having a cow which will beat this, can find a purchaser, by addressing me, and giving the age, color and breed of their animal, and the price at which she can be obtained.

STEPHEN SCAMMON.

Stratham, N. H., Dec. 29, 1863.

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CATTLE MARKETS FOR JANUARY.

The following is a summary of the reports for the four weeks ending January 13, 1864:

NUMBER AT MARKET.

	Cattle.	*Sheep.*	*Shotes.*	*Fat Hogs.*
Dec. 23	1775	4267	50	1400
" 30	1010	3136	—	2000
Jan. 6	1088	3063	—	2000
" 13	1526	3106	30	—
Total	5,399	13,572	70	5,400

The following table exhibits the number of cattle and sheep from each State for the last four weeks, and for the corresponding four weeks last year; also the total number since the first of January, of each year:

	THIS YEAR. *Cattle.*	*Sheep.*	LAST YEAR. *Cattle.*	*Sheep.*
Maine	447	2455	1148	3731
New Hampshire	677	1898	827	1055
Vermont	1666	3,848	2830	2944
Massachusetts	368	1957	243	1280
Northern New York	187	770	222	637
Western States	1902	1888	1318	1703
Canada	152	753	271	863
Total, last four weeks	5,399	13,572	6,659	12,213
Total, since Jan. 1, (2 weeks,)	2,614	6,169	2,329	5,404

PRICES.

	Dec. 23.	*Dec. 30.*	*Jan. 2.*	*Jan. 9.*
Beef, 1st, 2d, 3d qual	5½@8¼	5½@8¼	6 @9	6 @9
" ex. and premium	8¼@9	8½@9	9¼@9½	9½@10
Sheep and lambs, ℔ lb.	5½@7¼	5½@7¼	6 @7½	6½@8
Swine, stores, w'sale	@7	@7	—	—
" " retail	7½@8¼	7½@8¼	—	7 @8¼
Live fat hogs	@7	6½@7	@7	—
Beef hides, ℔ lb.	9 @9¼	9 @9¼	9 @9¼	9 @9¼
Pelts, sheep & lambs	$2¼@2¼	$2¼@2¼	$3	$3

REMARKS.—The two last markets of 1863 were dull and heavy, although the amount of stock sold was considerably less than that for the last two weeks of 1862; while the first two markets of this year were quite brisk, and prices have advanced full ½c ℔ lb. on beef, and more than that on sheep, with quick sales.

SALES OF WESTERN CATTLE.

W. Scollans & Co., sold to G. Davis 20 Western steers, 1433 lbs. each, at 9¼c, ½ sk; and 2 at 10c, ½ sk: 55 to Brooks & Stone, 10 at 8c, 35 sk; 10 at 8¼c, 35 sk; and 35 at 8¼c, 34 sk; 17 to G. Wildes, 1431 lbs. each. at 9¼c, 34 sk; 24 to C. Sanderson, 1494 lbs. each, at 9¼c, ½ sk; and 4, of 1620 lbs, at 10c, ½ shrink.

Statistics for the Year 1863:

According to our weekly reports the following numbers of live stock have been sold at these markets during the year 1863, compared with those of 1862:

	Whole Number. 1863.	1862.	*Weekly Average.* 1863.	1862.
Cattle of all kinds	110,815	98,218	2091	1889
Sheep and lambs	250,597	229,198	4728	4408
Veal calves	16,005	10,000	302	192
Fat hogs	68,891	55,000	1300	1058
Shotes and pigs	22,950	46,000	244	885

SOURCES OF SUPPLY.—The following table exhibits the number of cattle and sheep arriving at market, from several States, for each quarter of the past year:

CATTLE.

Quarter ending	*Me.*	*N. H.*	*Vt.*	*Mass.*	*Nor. N. Y.*	*West.*	*Ct.*
Mar. 26,	2423	2274	5928	1596	474	7085	79
June 25,	654	1952	2683	1845	78	7709	271
Sept. 30,	7262	4514	7820	363	1206	11,441	1350
Dec. 30,	9927	6425	12,050	932	1607	8709	2498
This year,	20,206	15,165	28,481	4436	3365	34,944	4218
Last year,	12,501	9,958	31,206	3360	3603	35,405	1535

SHEEP.

Quarter ending	*Me.*	*N. H.*	*Vt.*	*Mass.*	*Nor. N. Y.*	*West.*	*Ct.*
Nov. 26,	1971	5684	8820	10,292	1299	8196	221
June 25,	689	8936	15,677	3279	1442	3824	316
Sept. 30,	18,138	8924	38.544	3271	8704	3587	18,173
Dec. 30,	11,925	11,516	28,573	1701	5547	4024	17,380
This year,	32,723	35,060	91,614	18,489	16,990	19,631	36,790
Last year,	31,169	22,946	95,495	14,878	11,846	19,927	32,937

TRANSPORTATION.—The cattle and sheep have reached the market by the several railroads, boats, &c., in the following proportion:

CATTLE.

Quarter ending	*Fitch.*	*Lowell*	*Eastern and Me.*	*Worcester*	*On foot and boats.*
March 26,	5520	3999	2441	7103	796
June 25,	3468	2159	882	8020	383
Sept. 30,	7114	7067	4379	11354	3982
Dec. 30,	10731	10026	7006	8717	5668
Total,	26,833	23,251	14,708	35,194	10,829

SHEEP.

March 26,	19523	6566	1981	8413	—
June 25,	22180	7413	40	3804	726
Sept. 30,	38540	35657	6490	3445	15153
Dec. 30,	25506	31931	14028	4325	4876
Total,	105,749	81,567	22,539	19,987	20,755

During the first half of the year there was a large advance in the price of beef; equal to three cents ℔ lb., according to our quotations, on the various qualities. That is, our figures stood 4½@7¼c, Jan. 1, and 8@10¼c ℔ lb., April 23. During the last six months prices have been much more uniform. Our highest weekly quotations for extra beeves have been as follows:

1st Quarter.	*2d Quarter.*	*3d Quarter.*	*4th Quarter.*
7¼c, 2 w'ks.	9¼c, 7 weeks.	7c, 6 weeks.	8¼c, 7 weeks.
7½ 4 "	9½ 1 "	9¼ 2 "	9 3 "
8 3 "	10¼ 1 "	8¾ 6 "	9¼ 2 "
8¼ 2 "	10 4 "		8½ 1 "
8½ 1 "			
9¼ 1 "			

Last year the highest prices for extra beef were:

1st Quarter.	*2d Quarter.*	*3d Quarter.*	*4th Quarter.*
7c, 3 weeks.	7¼c, 1 week.	7c, 1 week.	6½c, 5 weeks.
6¾ 7 "	7 9 "	6¾ 7 "	6¾ 5 "
6½ 2 "	6¾ 3 "	6½ 5 "	7 8 "

Notwithstanding the high prices offered for beef this year the average quality of the Western stock, in particular, has been very much below that of former years.